AMERICAN BEE JOURNAL

MAY, 1916

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American Bee Journal

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Bees and Queens for 1916

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We are now booking orders for April, May and June, 1916 deliveries at the following prices, viz.:

Prices of one and over	1	6	12	25
Virgins	$ .50	$2.75	$ 5.00	$10.00
Untested	.85	4.50	8.00	16.00
Warranted	1.10	5.50	9.50	19.00
Tested	1.50	7.50	13.50	26.00
Breeders	3.00 and up to $10.00 each.			

1-frame nuclei without queen	$1.50
2-frame " " "	2.75
3-frame " " "	3.50

When queens are wanted with nuclei add queens at above prices quoted for queen

½ lb. package, wire cages, without queens	$1.00
1 " " " " " " "	1.50
2 " " " " " " "	2.00

If queens are wanted with pound packages add at prices quoted for queens.

On all orders amounting to $50 and over we will allow 5 percent discount, and orders amounting to $100 and over will allow 10 percent discount from above prices.

We guarantee safe delivery on queens, and safe delivery on bees that are not in transit over five days.

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Anything and everything you might need in Bee Supplies—and at right prices. Ship us your old Combs and Cappings for rendering. Write for terms.

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Queens	March 1st to May 1st			May 1st to Nov. 1st		
	1	6	12	1	6	12
Untested	$1.00	$ 5.50	$10.00	$ .75	$4.00	$ 7.50
Tested	1.25	6.50	12.00	1.25	6.50	12.00
Select tested	2.00	10.00	18.00	1.50	8.00	15.00

Bees by the pound after May 10th. Safe arrival guaranteed to any point within six days of Mathis, Tex. Large orders must be placed 30 days in advance of shipment, accompanied by 25 percent advance payment. This means orders amounting to $50 and up.

Pound packages	1	12	50	100
1-pound package	$1.50	$16.00	$ 65.00	$127.00
2 " "	2.50	29.50	116.50	230.00

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2-frame " " "	2.50
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Any number wanted at these prices. No queens included with bees by the pound or nuclei. If queens are wanted, add price of queen to price of nucleus or pound package.

H. D. MURRY, MATHIS, TEXAS

American Bee Journal

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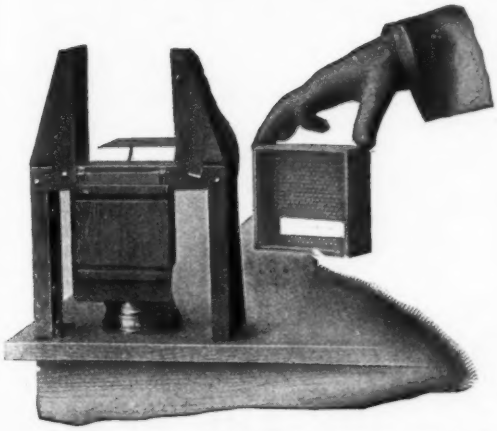

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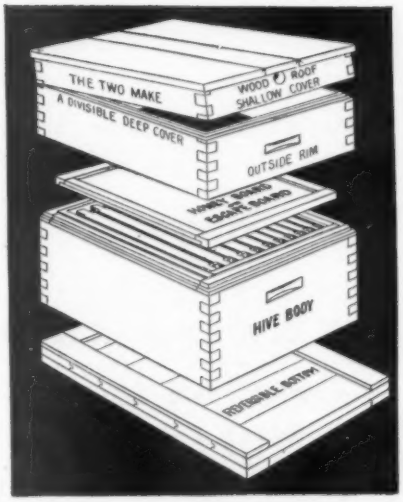

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Price, $14.75 for five hives, delivered to any station in the U. S. East of the Mississippi and North of the Ohio Rivers.

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ALLEN LATHAM

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Fine Queens and Bees

Queens from my honey-gathering strains of three bands and goldens at the following low prices: Untested, one, $1.00; 6, $5.00; 12, $9.00; 25, $17.50; 50, $32; 100, $60. Tested queens, 1, $1 50; 6, $8.00; 12, $15. Nuclei or lb. packages, 1-fr. with untested queen, $2.50; 6, $14; 12, $26; 2-fr., 1, $3.50; 6, $18; 12, $34. If tested queens are wanted add price as above

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American Bee Journal

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When you order Bees and Queens from us you have **quality, purity and honey gatherers.** We can fill your orders from the above famous strain for Queens, Bees, Nuclei and full Colonies promptly, or at such time as the purchaser may desire, and guarantee safe delivery and entire satisfaction to you in every respect. Our aim is to give you the best stock on the market at the time you want it. We ask you to give us a trial and let us prove to you that everything we claim for our bees is true. We will ship from Florida until May 20th, after that date from Canton, Ohio. Prices as follows:

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	1	6	12
Untested	$1.50	$ 7.50	$12.00
Tested	2.00	10.50	18.00
Select Tested	3.00	15.00	24.00

Tested Breeding Queens, $5.00 and $10 each.

Prices on Bees by the pound f. o. b. shipping point. Shipment begins May 10.

	1	6	12
½ lb.	$1.50	$ 7.50	$12.00
1 lb.	2.00	10.50	18.00
2 lbs.	3.00	15.00	27.50
3 lbs.	4.00	21.00	36.00
5 lbs.	5.50	27.50	50.00

(These prices are without Queens.)

Prices of Nuclei and Full Colonies without Queens. Shipping now.
1 Frame Nucleus, $2.00; 2 Frame Nuclei, $3.00; 3 Frame Nuclei, $4.00; 5 Frame Nuclei, $5.00; 8 frame Colony, $8.50; 10 Frame Colony, $10.
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Unrivaled Italian QUEENS

Gentle and prolific, three-banded, and one of the very best honey strains. After May 1st to July 1st, untested queens, $1.00 each, $9.00 per dozen. After July 1st, special rates. Three-frame nuclei with untested queen, $2.75. After June 1st try one; you will want more. Satisfaction guaranteed.

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Northern Bred Italian Queens

More hardy than Southern bred. Try them once. Untested, $1.00. Sel. tested, $1.50 Plans for beginners, "How to Introduce Queens and Increase," 25 cents.

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American Bee Journal

Embargo on Bee Supplies
In the East

BEEKEEPERS in the Eastern States, particularly in New England, should not delay ordering their stock of supplies as early as possible The Eastern railroads are conjested and have even placed an embargo on shipments to various points, refusing to accept freight until their roads are unburdened. Ordering your requirements a month earlier than usual will not cost any more and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur while in transit.

Our New England States representatives, Ross Brothers Co., 90–92 Front Street, Worcester, Mass., have a large supply of **"Falcon"** bee-supplies, and are especially equipped to handle the New England States beekeepers' orders whether they be large or small.

Those beekeepers living in the New England States can order direct from the factory at Falconer, N. Y., or can write for the name of the nearest dealer as they find it more convenient.

Red Catalog, Postpaid **Dealers Everywhere** **"Simplified Beekeeping," postpaid**

W. T. Falconer Mfg. Co., Falconer, New York

Where the good bee-hives come from

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To order your supplies, and thus have everything in readiness for spring

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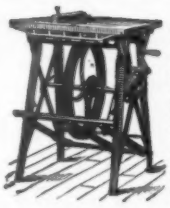

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Untested queens early in April. $1.00 for single queen; $9.00 per dozen.

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LEWIS YEAR

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MAKE THIS RESOLUTION

That you will use LEWIS BEEWARE this year—because it means success insurance to you---because it means bee-hives and parts made of the best material by skillful workmen---because it means goods accurately and systematically packed---because it means sections made of bright lumber, highly polished, accurately dovetailed and scientifically grooved.

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G. B. Lewis Company

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Watertown, Wisconsin, U. S. A.

AMERICAN BEE JOURNAL

Vol. LVI.—No. 5 HAMILTON, ILL., MAY, 1916 MONTHLY, $1.00 A YEAR

A WORKING COMBINATION

Bees, Fruit and Poultry Provide Safety Against Seasons of Failure, With Something to Sell Every Day in the Year

THERE has been much discussion of whether it is better to combine beekeeping with some other pursuit to guard against seasons of failure, or keep a sufficient number of bees to enable one to harvest a sufficient crop in the good season to carry over the poor one. This will depend very much on the temperament of the beekeeper and on his locality. Failures are much more frequent in some localities than in others and there is a great difference in the number of colonies that a given acreage will support. These matters are always best decided by the beekeeper. He should be the best judge of his own locality and also of his own capacity as a honey producer.

Since many beekeepers live in localities which will not profitably support a sufficient number of colonies to furnish an entire dependance, or prefer for other reasons to combine beekeeping with some other pursuit it may be of interest to discuss the possibilities of such a combination.

It is usually safe to measure the possibilities in a given direction by some man's accomplishment and the description of a successful business has the added attraction of the human interest story. With this idea in mind the staff correspondent of the American Bee Journal visited Nauvoo to interview the president of the Illinois Beekeepers' Association and to learn something of his methods. Mr. E. J. Baxter is well known to many of our readers, having been an officer in the National as well as his own state association.

Nauvoo is an interesting old town because of its connection with the early history of the Mormon church; but that is outside our story. The Baxter home is just in the outskirts of the town and the first thing to attract the visitor's attention is the well kept vineyard and orchard. There are ten acres in the home place which gives the impression of being intensively cultivated, mostly in fruit. There is also another place not far away so that Mr. Baxter has about thirty acres devoted to fruit growing in all. Since Mr. Baxter is located within less than a mile of the Mississippi river, the limestone soil and proximity to the water are very favorable to fruit growing. Loss from spring frosts is less frequent than farther from the river. Locality is as important in fruit growing as in beekeeping.

The beekeeper looks for a large acreage of nectar-secreting plants, while the fruit grower must have a suitable soil and freedom from unseasonable frosts. Poultry can be kept almost anywhere if properly cared for, but the margin of profit in poultry is very small after the farm waste has been consumed.

GRAPES YIELD HEAVILY

The kinds of fruit which can most profitably be grown depend greatly upon a man's situation. If he has a good local market and plenty of help available, berries will often prove profitable, although the rush of berry picking usually comes during the height of the honey flow when the beekeeper needs little else to occupy his attention. Mr. Baxter has grown raspberries, strawberries, grapes and apples principally, with small quantities of pears and other fruits. He now grows grapes and apples with a small acreage of strawberries. Apples combine very nicely with beekeeping since the care of the orchard comes ahead of the honey flow and the picking of the fruit comes after the honey flow is over. With a suitable situation and a wise selection of varieties the apple orchard is a dependable source of revenue. While there are often seasons when the crop is light the average annual returns from the orchard will prove more satisfactory than from field crops. Mr. Baxter has a small orchard of seven acres which began bearing four years ago. The first two crops were good for such young trees, and for the last two years the return has been about one thousand dollars net per year, or about one hundred and fifty dollars per acre.

In planting an apple orchard great care should be used in the selection of varieties. There are many varieties that are such shy bearers that they could never pay, while others are not popular in the market and bring unsatisfactory prices. It is important, also, to buy the trees from a responsible nursery to insure that they will be true to name. It too often happens that after caring for an orchard six or seven years in the hope of realizing handsomely from later crops the owner will find himself imposed upon by the substitution of inferior varie-

American Bee Journal

THE BUSY SEASON IN THE BERRY PATCH COMES DURING THE HONEY FLOW

ties instead of those for which he has contracted.

If one starts an apiary in an unsuitable location the bees can be moved with but little loss, but an orchard is permanent and if a mistake is made in choosing the location or the trees the resulting loss will be heavy. Too much care cannot be used in selecting a location of this kind. If the owner has neither enough bees nor enough trees to furnish a sufficient support alone, he should be very sure that his location is favorable both for fruit growing and for honey production.

If one is not sure of his location strawberries can best be grown as a temporary crop. They yield well under favorable conditions, come into bearing quickly and since they must be re-set frequently a change of location will not result in serious loss. When asked about the profits from strawberries Mr. Baxter pointed to a small patch of less than half an acre which returned two hundred and twenty-five dollars last year. Berry growing is much on the order of market gardening. Quick returns and good profits are to be expected, but much labor is required. Unless the location is such that plenty of assistance can readily be secured for hoeing and picking there is danger of loss.

Another serious drawback to berry growing is the necessity for immediate marketing. In case of necessity the honey crop can be held for several months without injury, while the berry crop begins to deteriorate as soon as picked and a few hours more or less in the time of reaching market makes a great difference in the returns. This condition holds good to a greater or less extent for all fruit. Apples if carefully handled can be placed in storage and held for several months but even if stored prompt handling is necessary to get them moved in time. All fruits are sensitive to both heat and frost. While careful handling is necessary to prevent breakage in comb honey and some attention must be given to temperature to avoid granulation, with proper attention to these details there is less loss from changes of temperature with the honey than most other commodities.

The extensive honey producer will consider all these matters carefully before starting into fruit growing also. If only such fruits are grown which are suited to his location and which come at a time when work in the apiary is not pressing, it will be an excellent combination, since his work can be more evenly distributed through the year and there is less danger of failure all-round. If he makes the mistake of selecting fruits which ripen at the time of his honey harvest, either fruits or bees are likely to be neglected with a consequent loss somewhere and unless both are properly cared for he would be much better off with one alone.

Grapes are a very satisfactory fruit to grow where good markets are at hand. They yield heavily and continue to produce large crops for many years if the vineyards receive proper attention. Mr. Baxter harvested sixteen thousand baskets of grapes in one year from eight acres. These at twelve cents per basket returned about two hundred and forty dollars per acre. His average however, is only from one hundred and twenty-five to one hundred and fifty dollars per acre annually. In many localities there is no honey flow at the time of the grape harvest.

In Mr Baxter's locality there are frequent seasons when the honey crop is short and in such a locality it seems more desirable to combine bee-keeping with some other pursuit as he has done. He himself has about one hundred and eighty colonies in two yards. The writer was interested in knowing whether with a larger number of bees he would not have done as well or better to occupy his entire attention with honey production. No figures for a long period of time were secured but the total sales of honey for three successive years when added gave a net return of about seven dollars and seventy-five cents per colony per year. Of course if a longer period of time had been considered during which time some years of failure occurred it would bring the average somewhat below these figures. However, Mr Baxter assured the writer that the bees had paid better for time and money invested than any other crop which he harvested and pointed to his fine home which had

THE APPLE CROP IS HARVESTED AFTER THE HONEY FLOW IS OVER

American Bee Journal

een paid for from the proceeds of the piary as an example of what can be xpected from honey production. Mr axter's largest honey crop was in 882 when he took twelve thousand ounds of honey from forty-one colnies spring count. This was when e had only a few bees and before he ame to regard the business seriously. From that day to this he has been an nthusiastic beekeeper and although uch unusual crops come only at rare intervals the memory of such a one is sufficient to lend encouragement during several years of failure. It is needless to state that this crop was not included in figuring the average return for the three years above quoted.

Mr Baxter began life without assistance and has accumulated his modest fortune entirely by his own efforts. When asked whether a young man without capital could hope to succeed under present conditions he did not hesitate to say that, if he would master the business and stick to the bees through thick and thin, he could within a few years make himself independent by growing fruit and producing honey for market.

There are numerous examples of young men who have started with a few colonies under difficulties and while attending to other work have gradually increased the number until they were prepared to cut loose and depend entirely upon the bees. While the man who has sufficient capital to carry him over a season of failure will usually find it more profitable to to depend entirely upon honey production and extend his business to the point where it will justify his entire attention, the man with limited resources will usually find it better to combine beekeeping with some other line for a time until he is more secure in case misfortune in the form of an epidemic of disease, poor seasons or other calamity should overtake him.

THE HOUSE THE BEES BUILT

Value of Young Queens

BY N. E. FRANCE.

Read at the Wisconsin State Meeting in 1915.

WISCONSIN has over 10,000 beekeepers according to the United States census, and a large portion of those have rural delivery, are away from the busy city, enjoy fresh air, and best of home grown food; fresh eggs, butter and honey. They know the value of the best breeding in farm animals, also the care of same. Suppose I should advise them to sell that high priced sire at the head of the profitable dairy and use instead a cheap scrub sire whose breeding for generations was its own relation. They would at once consider me a fit subject for the asylum.

Again suppose I go into an orchard and find quite an apiary, and inquire as to what strain of bees it has. Too often I find hives of several kinds, some painted, others not, but all show neglect, and the hive entrances show a lot of small, almost black, bees likely badly diseased.

Who is to blame? Nature has done all possible to avoid inbreeding of bees, as the queen mates on the wing away from home, but if the entire apiary is inbred stock, what is the result? I know bee owners who have boasted to me of never having purchased any queens. I don't believe in it. I need not tell you what I find in such apiaries. Last season not an average honey crop was harvested, and many times in the latter part of the summer and fall I found small swarms not good enough to winter where the owner had no knowledge of the age of his queen.

Old queens, or those over a year old, will not fill the hives with bees in the spring or summer, and certainly will not have many young bees for winter. I consider young queens very important.

When I was wintering 600 colonies on summer stands, I seldom had much loss if I had young queens with abundance of good honey and colonies in well protected hives. Again young queens are much less liable to swarm, will have hives full of workers when the honey season comes, and head the profitable colonies.

It is not necessary to buy many queens every year, as enough from one good queen can be reared to requeen an entire apiary. European foulbrood is much worse in these weak inbred apiaries, so that I now consider this disease a real blessing in disguise. It means, where found, the owner will take much better care of his bees, introduce better blood, and give the bees the needed care.

THE BEES ARE WINTERED IN DOUBLE-WALLED HIVES

American Bee Journal

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IMPORTANT NOTICE.

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THE EDITOR'S VIEWPOINT

Cypress for Hive Stands

There is an increasing demand among the beekeepers for something more durable for hive bottoms and hive stands. Soft woods decay rapidly in contact with the soil, and because of its greater durability cypress is much better for such purposes. In a letter to this office, Dr. Bonney recently commented as follows:

"My hive-stands are of cypress, and stand in the mud and wet all the time, and are as solid as when I got the first one several years ago."

Most manufacturers and supply dealers are anxious to give their customers a product that will give satisfactory service and we note with interest the tendency to offer cypress to those who prefer it.

Give Us Suggestions

Our readers appear to like the new arrangement of the American Bee Journal. Four issues have been published since we dropped most of the departments and substituted illustrated articles of general interest.

As announced in the March number, we have secured the services of a staff correspondent who will make long journeys when necessary to get such material as we believe our readers want. In our June number there will be an illustrated feature on marketing. To get this the commission merchants and retail dealers of Chicago were interviewed. We believe that the information gained will be valuable to our readers. The story of the work of the government at Washington in the February number, also that of the work in Massachusetts in the April issue are samples of the information our staff correspondent will furnish.

We hope during the coming months to publish articles from many sections and to describe some of the best methods of doing the work in the apiary, from extracting to queen rearing. We desire our readers to write us and suggest subjects which they would like to see covered by these feature articles. Two or three times a year we will issue a special locality number, like the New England number in April. These issues will contain little except information about the particular locality or by contributors who live in that section.

We are now trying to plan our work for a full year in advance, and accepted material may be longer in appearing than formerly. This does not indicate lack of appreciation of the contributions, but that we must wait until it fits the plan we have in mind for a special number.

We have still other improvements in mind and will be very grateful to our readers who write to tell us what they want to see in the Journal.

Transferring Bees

Special Bulletin No. 76, of the Michigan Agricultural College Experiment Station, by F. E. Millen, in charge of beekeeping, is the most exhaustive article on transferring bees which we have ever seen. It gives several methods and also directs how to remove bees from buildings.

In spite of modern progress, there are still many bees kept in logs and box-hives, in some parts of this country. Several States have laws demanding that bees be kept in movable frames so that possible brood diseases may be more readily detected. As long as box-hives are in existence such bulletins as the above will be useful. It may be had from Prof. F. E. Millen, East Lansing, Mich.

Visit to Texas

Wife and I reached home, late in March, from the Texas trip mentioned in the March Bee Journal. We have a number of requests for a detail of our impressions. This will be given just as soon as we can prepare it. Besides a "Texas number" will be published by and by.

We have been compelled to disappoint some friends who were expecting us and have been disappointed ourselves in being unable to visit as many spots as we wished. Yet we traveled some 2400 miles and probably visited the best beekeeping region, where we met the representatives of about 35,000 colonies of bees. But Texas is such an immense State. Their honey crop of 1915 was well sold out, and the crop of 1916 keenly expected.

Our thanks are due to Prof. F. B. Paddock, State Entomologist, and to our genial friend E. G. Le Stourgeon, of San Antonio, for the courtesies extended by them. C. P. D.

Poisonous Spraying and Bees

The 6th annual report of the Massachusetts State Inspector of Apiaries, Bulletin No. 10, of the State Board of Agriculture, contains a large amount of gathered information on the damage done to bees by ill-timed spraying of fruit trees.

Enough has been said on this subject to convince the rational fruit grower that there is much to lose and nothing to gain from spraying during fruit bloom. Reports similar to the bulletin above mentioned will do much to impress the public with the advisability of spraying fruit only after the dropping of the petals of the flower. Professor Gates has done good service in preparing this bulletin.

Shipping Heavy Colonies in Hot Weather

Read the article in this number by Mr. Hayes. Often more may be learnt through failures than through successes. But the average man does not like to acknowledge failure. So those are most to be praised who inform others of their mishaps and thus warn the n of danger.

Colonies of bees may be shipped even if heavy with honey, in hot weather, but there must be a free current of air through the hive, with full screens at both top and bottom. There must be no virgin combs heavy with honey, as the least jar is sufficient to break these, and when once honey is running the bees become daubed with it and are doomed. There must be no quantity of unsealed honey in any of the combs. It is best to extract a part of the honey a few days before shipping, so they may have at least one-

American Bee Journal

third of their combs empty, on which to cluster. In addition it is well to have an empty super over the brood-chamber for the bees to cluster in also. They must be sheltered from a possible exposure to the sun's rays. Protective cleats must be nailed at both top and bottom, to maintain a space between the hive and the floor, or between the different hives if piled on top of each other in transit.

W. Z. Hutchinson wrote in the American Bee Journal, in November, 1885:

"A strong colony confined to its hive and disturbed, in warm weather, generates a large amount of heat, and combs that are heavy with honey are almost certain to become so soft as to break down unless they are very old and tough.

"In hot weather, or if the bees are to be confined any great length of time, there must be openings in the bottom as well as the top of the hive, in order that there may be a current of air to carry away the superabundant of heat."

In 1881 we transported 110 colonies from the hills north of our home to the Mississippi river lowlands, 24 miles away, about July 25. The hives were dry, as far as honey was concerned, and they had very little brood. They were entirely confined, with the exception of the cracks or joints of the bottom and top. But they had each an entire empty super in which to cluster, and the transporting was done at night, starting from the apiary at midnight and getting to the destination ten hours later. Not a single colony suffered, no bees were lost.

In 1915, 10 colonies were transported four miles on an automobile truck, without any other ventilation than above mentioned, on a hot July evening, but they were light with honey and had an entire super in which to cluster.

Not only is a hive heavy with honey difficult to transport unless the combs are very old, the honey all sealed and a current of air supplied from top to bottom; but even swarms of bees may suffer from confinement in hot weather. Mr. Langstroth wrote some 65 years ago:

"I have several times examined the bees of new swarms which were brought to my apiary, so closely confined that they had died of suffocation. In each instance their bodies were distended with a yellow and noisome substance, as though they had perished from dysentery. A few were still alive, and although the colony had been shut up only a few hours, the bodies of both the living and the dead were filled with this same disgusting fluid, instead of the honey they had when they swarmed."

Demand for Sweet Clover

Among the number of 1916 bee-supply catalogs we have seen, only one mentions sweet clover or lists the seed. New articles on which there is doubtful pecuniary gain do not readily find their way into a catalog, but sweet clover is so valuable that no catalog should fail to offer the seed. Prominence, a cut, and brief hints about the plant, will not call for more space considering its value than common articles needed by beekeepers. The seed can be handled at a reasonable profit.

There has been a long felt want; in fact, a demand among beekeepers for a plant that would produce nectar and otherwise be worth while cultivating. Sweet clover answers this demand.

What bee-supply dealer has not been requested for information about the best plant to grow for the bees? Sweet clover can be universally recommended as it will grow well in almost any locality, and abundant authority can be given to show its great value for cultivation.

Iowa Inspector Report

It is hardly proper to praise people who are of our own staff. Yet we would make a mistake not to recommend Mr. Pellett's Report for the year 1915. It is just as full of information as the report of the previous year, and we predict that the edition will be exhausted before everybody gets a copy who ought to have one. It may be had from Frank C. Pellett, Atlantic, Iowa.

Don't Let Them Starve

There seems to be a general shortage of honey in the hives this spring, in some locations, owing to the great strength of the colonies. They have bred plentifully and might suffer before the clover flow, if the fruit blossoms fail to yield honey. In the Middle States, the beekeeper will do well to watch closely his colonies until the crop is on.

More About Sweet Clover

Bulletin No. 235, of the Ontario Department of Agriculture, has for its title "Sweet Clover" (*Melilotus*). It is a 32-page bulletin, and was written by H. L. Fulmer, B. S. A., Lecturer in Chemistry.

Being a chemist, the author devoted a considerable portion of the booklet to the discussion of feeding value, manurial value, digestibility, proper stages for cutting, nutrients, etc., and he accomplished what he did, too, in a manner that should leave little doubt in the minds of the readers of this bulletin as to the future value of sweet clover. For instance, in its contained nutrients and in fuel value sweet clover stands twice as high as timothy, alsike or red clover, and nearly twice as high even as alfalfa. It has more ash and more carbohydrates than any of the above mentioned plants and only a little less protein and fat than alfalfa.

The bulletin gives a clear and comprehensive description of the nature, distribution, habits and management of this valuable plant.

About its value as bee-pasture, the author says, "On account of the prolonged blooming season—from June until frost in autumn—sweet clover proves an ideal honey plant. The honey obtained is colorless and of fine flavor. The name of this plant, *Melilotus*, comes from the Greek and means honey or syrup of lotus. Hence, at the time the plant was named it was recognized as a leading source of honey."

The bulletin is well illustrated, and we presume is for free distribution, at least in Canada.

Those Compound Words

In the literature of our favorite pursuit, a number of compound words occur, and there has been a lack of entire uniformity as to the appearance of these words on the printed page; which, indeed, may be said to be true regarding compound words in general. Some time ago, Dr. E. F. Phillips opened a conference with Editors E. R. Root and C. P. Dadant, with the writer as assistant counsel, with the design of securing greater uniformity, and a list was made out in which there was more or less agreement.

The Beekeepers' Review has thought this list of sufficient importance to publish it, and one of its associate editors, Prof. E. G. Baldwin, has made some comments upon it, in which he says: "The effort is probably a worthy one, inasmuch as it is a step toward unification of usage." He asks, "Is it too much to add that many obvious compounds have been omitted from this list? Or is this merely intended as a starter, and others are to follow if these are accepted?" Hardly as a starter, Professor, for nothing was said about further additions, yet it is not at all claimed that the list is complete. At the same time it is doubtful if a single "obvious compound" was omitted; that is, that was obvious to either of us. Frankly, I'm glad you give that hint, for I hereby challenge you to give us a list of the "many" that are obvious to you. I'll be glad of the outcome either way; if you can't think of half a dozen additional, I'll be glad of the joke on you; if you give quite a

American Bee Journal

long list, I'll be still more glad to know more of a man who can give a lot that I couldn't think of—or at least didn't think of. And in the latter case I'll hide behind the claim that I never spent much of my life lexicographying.

Prof. Baldwin seems to see inconsistencies in the list. The whole business of writing compound words is more or less a thing of inconsistencies. The Professor will have a busy time of it if he attempts to reconcile all the compound words in the dictionary. Let him try his hand on egg-shell and horsehair. In the present case there is less chance for consistency than in the dictionary; for there are four men with different notions, and no distinct law by which to be guided. If they can compromise their differences it will be a gain, in spite of the inconsistencies. It is better to have all write "bee-yard" and "outyard" than to have no unanimity."

If there be any law in the case, it seems something like this: When a word is compounded, a hyphen is written between them; then when the compound is sufficiently familiar the hyphen is thrown out and the two words are written as a single word. Yet some seem inclined, when throwing out the hyphen, to let the two words fall apart as single words. That way lies confusion.

Prof. Baldwin seems to think that a change in putting in or leaving out a hyphen has some effect in changing the accent. That's new to me, and I'm sure it's not true in my case. He says: "For example, Dr. Phillips' list has 'bee-culture' accents on both bee and culture, which is obviously common sense, inasmuch as no one would ever try to say 'bee' 'culture,' with only one accent." Beg pardon, Professor, but that's exactly the way I've pronounced it all my life, without any reference to the way it might be printed, and I never noticed that any one else pronounced it differently.

In the list is the word "beestings." Prof. Baldwin says: "This word 'beestings' is a poser. Do you know that it is only one of the two correct spellings of the word for the first milk given by a cow that has freshly calved, and is a technical word, when spelled as a single word, not compounded, and that the other spelling is, *biestings*'? We would respectfully suggest that this word, at least, better be spelled either 'bee stings' or 'bee-stings.'"

Well, you're not the only individual, Professor, who objects to "beestings." Another writes: "I agree with Prof. Baldwin on 'beestings,' which looks 'beestly' to me. I have been trying hard to follow the rule, but my conscience hurts whenever I write that word."

Well, now, suppose—just suppose—that the milky beestings had never come into existence, and we want to decide how to write the word that means the stings of bees. If we write it in two separate words, then we may as well throw to the winds all idea of using hyphens for *any* compound words, or of writing them as single words, and say that when more than one bee stings bee stings always result. If we admit that at any time in its history our word was entitled to a hyphen, surely the frequency of its use warrants that the hyphen now disappear and that the two words be run together as one. In short, any reasoning that warrants "fleabite" warrants "beesting." Clearly "beesting" it should be *if* that other word were not in the way.

Trot out now your beestings that you get from the cow, and see how much claim it has to drive out our friend that comes from the bee. Your question as to one's knowledge of it, together with your giving its full definition, shows that you do not believe many know of the existence of such a word. I am not ashamed to confess that I never knew there was such a word until hunting in the dictionary after the sting of a bee. Honest Injun, Professor, did you know of the word with the milky meaning before you saw that list? And now you and our friend of the tender conscience want us to give up a perfectly good and useful word—allowing that "bee sting," "beesting," and "beesting" are three different words—all because there is *in the dictionary* a word that we have never met elsewhere, never have heard used, and probably never will, for no other reason than a bit of sentimentality. Don't you really think that's carrying sentimentality just a little too far?

Anyway, I'm glad of your interest in the matter, and the longer you make that list of omitted obvious compounds the better I'll like you. C. C. M.

Honey Desserts

This is a little French publication by Tante Line, containing some 20 recipes for honey desserts and ending with a pretty legend connected with the present devastated condition of poor Belgium. We have selected among them a recipe of honey pastilles, because we are already acquainted with these, since our good friend, Mr. Prieur filled our pockets with them at our passage in Poitiers, as reported in our Journal for July, 1915. A quart box of these pastilles was distributed among the beekeepers at the National meeting in 1914.

HONEY PASTILLES.

These are made of a mixture of sugar and honey. Honey alone, even if much cooked, would not reach sufficient stiffness or consistency. Then take: Sugar 5 pounds, water 2½ pounds, honey 2 pounds. First melt and heat the sugar on a slow fire until it is cooked, without being burnt; as it is cooked for the making of candy for bee feeding. The proper point of cooking is very important. It takes a little experience. When it has reached the proper degree the syrup becomes glittering. One may ascertain its proper degree as follows: Dip your finger in a glass of cold water and immediately after in the boiling liquid. Withdraw it quickly. If the syrup is sufficiently cooked it will in cooling become firm enough to be rolled in the fingers. If you are afraid of burning your fingers, you may, instead of the finger, use a straw or a little stick of wood. This is also dipped first in the cold water and then in the hot liquid. Then let a few drops of the latter fall into the glass. These drops will harden in the bottom of the glass, if the syrup is sufficiently cooked.

The honey should be added then: 4 pounds for every 10 pounds of sugar, and continue the cooking until the syrup becomes brittle when dropped into cold water. One must be careful all the time not to allow it to burn. This last cooking is the most difficult part of the operation.

When the syrup is done, the paste is poured upon an oiled marble table, and before it gets cold it is divided into squares or lozenges, or, still better, it may be put into moulds to give it whatever shape is wanted.

The large confectioners' shops are provided with moulds which work automatically and permit the manufacture of a large number of lozenges in a short time.

As honey is very deliquescent and absorbs moisture readily, those pastilles, when put up, would stick to each other. To avoid this trouble, they put into the tin boxes containing them another small box punched full of holes and containing chloride of lime, to absorb moisture. Another method is to slightly steam the pastilles and then roll them in fine powdered sugar, which prevents them from sticking to each other.

American Bee Journal

BEEKEEPING IN CHILE

By M. C. Richter

IN the fall of the year 1844, 25 colonies of bees left Milan, Italy, on a long journey around Cape Horn to the Port of Valparaiso, Chile. Their owner, Patricio Larrain Gandarillas, who had previously made an unsuccessful attempt to introduce bees into Chile, was this time rewarded for his efforts. Two colonies out of the 25 survived the

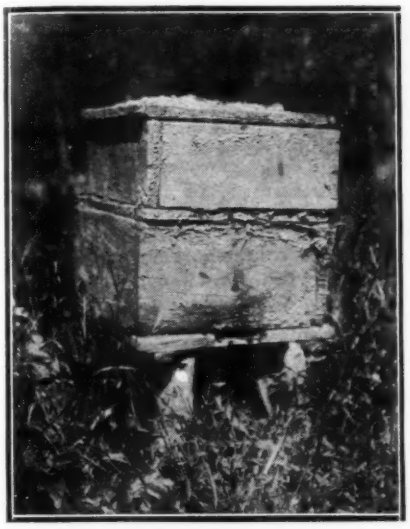


FIG. 1.—THE COMMON BEEHIVE OF CHILE—ITS DIMENSIONS ARE 13X13X6 INCHES

trip. Although both of these were extremely weak, each cast a fine swarm the following spring, much to the astonishment of the natives who could not understand why so many bees should hang on the limb of a tree in such a peculiar manner.

Forty years later, the descendants of these two Italian colonies reached from the 25th to the 44th parallel of Chilian territory; a distance of 1315 miles, or nearly twice the length of the State of California. It speaks well, indeed, for Chile as a bee country and for the Italian race of bees.

About 95 percent of the apiaries extending over this immense stretch of land consist of small frameless hives (Fig. I.) that produce per colony an aaverge of about 14 pounds of honey and 3 pounds of wax annually.

The "inquilinos" or farm laborers handle these apiaries, which are merely adjuncts to the large farms of the country. Some of these yards are very large, and run into the hundreds of colonies. They have, however, entire valleys and canyons to themselves. A typical apiary (Fig. II.) may contain in the spring 300 colonies, and by fall, through prime and afterswarms, as many as 700 colonies. The winter loss, however, is nearly 50 percent.

The methods of beekeeping are most crude. In the spring swarms are hived in the small boxes described above, and in a short while three or four empty ones are added. Before winter sets in all but one or two of these are removed, their contents cut out and thrown into a kind of solar wax-extractor. It not infrequently happens that the queen and many bees are included in this operation. The box or two remaining, supposed to contain the colony, are prepared for winter by plastering the cracks with mud. The honey taken from these so-called wax-extractors is, with a good portion of its impurities, run into barrels. Frequently these containers are poorly made and leaky, much to the disgust of the railroad and steamship officials and honey buyers.

The honey is sold in Europe; under normal conditions 60 percent going to Germany; 15 percent to England; 15 percent to France; and the balance, 10 percent, to Belgium and the Argentine Republic.

Notwithstanding these very crude methods of beekeeping, Chile's average exports from 1905 to 1910 were about 4,000,000 pounds of honey and 750,000 pounds of wax annually. The beekeeper sells his honey ordinarily at from 4 to 4½ cents a pound and wax at or near 25 cents a pound. The beekeeping industry enriches the country annually by some $375,000.

Such statistics appear quite remarkable for the box-hive artist, but when it is explained that there are no brood-diseases, and but a mild form of paralysis, they are more easily understood. The value of the wax produced is nearly that of the production of honey. This again can partially be accounted for by the fact that no combs have been destroyed by the waxmoth. The above statistics show that the ratio of honey to wax is about 5:1, whereas in our country, according to the United States Census for 1910, it was over 60:1.

Soon after the writer's arrival in Chile in the summer of 1911–12, he received the appointment of Governor Entomologist at the Estacion Patolojia Vegetal at Santiago, and in that capacity assisted in framing a bill to prohibit the introduction of bees, queens, honey, wax, etc., into the country. But no sooner was the bill before the Chilian Congress, than several samples of moth-eaten comb were received at the Entomologist's office from beekeepers in one of the southern provinces. Upon investigation it was found that some colonies of bees had recently been introduced from Germany, and with them came also the waxmoth.

There have been in the past, and are also today, several excellent beekeepers in Chile. One of the earliest was Vincente Chuecas who, in 1865, owned 640 colonies, one-third of which were in hives not unlike the Harbison hive of California. After several years of hard labor, he gave up beekeeping in disgust, because he could not realize even one cent a pound for his honey, while 100 pounds of wax brought him but $4.50. Do you blame this pioneer Chilian apicultor, el Senor Vincente Chuecas?

Twenty-three years later Alfredo Duffy and R. A. Sanhueza produced large crops of honey. The former used the Dadant-Quinby hive and the latter the De Layens hive. In 1892 an English beekeeper, J. R. W. Hale, commended beekeeping in Chile and criticised the Chilians because they kept more than 1000 colonies of bees in a single apiary. He, however, kept as many as 500, and got an average of 73 pounds to the colony.

Of the present day beekeepers there are Bernardino Hernandez whose 1911–12 crop averaged 27.5 pounds of honey and 2.7 pounds of wax per colony from 1100 colonies in Chilian hives; Guillaume Javet, whose 1911–12 crop averaged 36 pounds of honey and 2.5 pounds of wax per colony from 1000 colonies in Dadant hives; and Raymond Madaune, whose 1911–12 crop averaged 44 pounds of honey and 1.6 pounds of wax per colony from 300 colonies in Dadant hives.

FIG. 2.—A CHILIAN APIARY AND ITS CARETAKER

In the field of apicultural literature Chile is well to the front. About the year 1890 she was the proud possessor of a bee journal edited by Juan Dupont-

American Bee Journal

FIG. 3.—CARDO, THE GIANT THISTLE OF CHILE

Lafitte, and called "El Apicultor Chileno." But, alas! This, like so many of her sister journals, died a natural death. In 1892 Echeverria Cazotte put out a comprehensive treatise on bees, entitled, "Colmenas y Colmenares." Later a similar but smaller work, "Tratado de Apicultura," by F. Balaguer appeared. The latest book on beekeeping, however, is by a Swiss, Juan Brunner. It is "Curso de Apicultura," and the writer understands that Senor Brunner is connected in some way with the Institute Agronomico at Santiago, where there is now an experimental apiary and where courses in beekeeping are also given.

The only apiary of Langstroth hives that the writer found was that of Mr. John A. Wolffsohn. In fact, Mr. Wolffsohn has been the only beekeeper that has been successful with the American hive, although prior to 1912 there were some 800 or 900 of our hives in use in Chile. The failures were due solely to the fact that those employing our make lacked knowledge of the rudimentary principles of beekeeping. As an exporter, Mr. Wolffsohn, at one time handled one-half of the entire amount of honey that was shipped out of Chile. He is today not only the best informed man on apicultural matters, but is also doing more than any other to advance our industry in Chile.

The future of beekeeping in Chile is exceptionally bright. The climate is like that of California, and the honey-producing flora is not only rich but practically limitless. Splendid locations abound from the northern Province of Atacama to the southern Province of Llanquihue. The uppermost provinces are comparable with the Imperial Valley of California, and, where there is irrigation, good crops of alfalfa honey are produced.

The central provinces are not unlike the big valleys of California, with the exception, of course, that they are not nearly as large. Of the trees, the best honey flora in these regions are eucalypti (several species), willow, locust, acacia, fruits (all the common varieties), pepper, quillay, and corontillo. The latter two have no English names, and are, by far, the two best honey-producing trees of the central part of the country. The honey-producing plants in this section are: filare, wild mustard, wild turnip, wild radish, phacelia, white clover, red clover, alfalfa, the various vegetables and melons, Mayweed, horehound, sweet fennel, cardo, peppermint and sunflower. Cardo (Fig. III) is the well known giant thistle of Chile, and is a regular producer in large quantities of a finely flavored white honey.

The southern provinces are famous for their honey-producing trees, most of which yield an excellent white honey. They are the ulmo, quillay, maiten (Fig. IV.), maqui, coigue, and piche. White and red clover and Palo Santo are also good honey producers.

San Francisco, Calif.

[To be continued].

What Constitutes a Good Queen

BY J. P. MOORE.

ALTHOUGH there are queens and queens of all varieties and colors, very few buyers state just what they want in them, and very few breeders take the care that they should in rearing them. *A good queen* is two words with a big meaning, for she must be good in many more respects than one. Her pedigree must be looked up well.

I consider the three-banded Italian queens superior for all purposes, and this article treats of that strain only.

Many beekeepers never stop to think of what they want in their bees, looking only to the one quality, namely, "honey gathering," but if they would demand in their queens all the points which are listed below, beekeeping would become established on a higher plane and would improve faster than it does. Every beekeeper, whether large or small, should be a subscriber to at least one beekeeper's magazine.

The queen-breeder must rear his queens from mothers who have made an extra good record for honey productiveness, for non-swarming (under trying conditions), for gentleness, for prolificness, for hardiness, for purity and for size. Next, these daughters must be mated with drones whose mothers have been selected with the same care as the queens. This should produce a strain of bees that will not only bring in the honey fast but withstand severe weather, be gentle to handle, and disease resistant as well.

It is safe to say that if our queens are reared and mated with the above points carefully kept in mind, they will resist almost any disease known to bees unless through ignorance or neglect the disease is actually thrust upon them.

We take great care in the breeding and rearing of our fine stock, such as horses, cattle, etc., why not put this in practice with our bees also?

Hardiness in bees develops the honey gathering qualities. I have often seen bees out at work just as dawn was breaking and almost at dark in the evening on cool days. This means good workers that will withstand some of our severe winters, and it takes the right kind of queen to produce these workers; therefore, I make *hardiness one big point.*

I do not place much stress on color, as I have had dark queens in my apiary that produced as much honey as did some of my best breeders or even more. Large yellow queens are desired by many for the reason that they are easier found when examining the colony. These queens become darker and more leather colored as they grow older.

Never under any circumstances breed from a queen whose workers are inclined to swarm. Let us try to get rid of this kind. In the interest of beekeeping always demand the best in your queens.

Morgan, Ky.

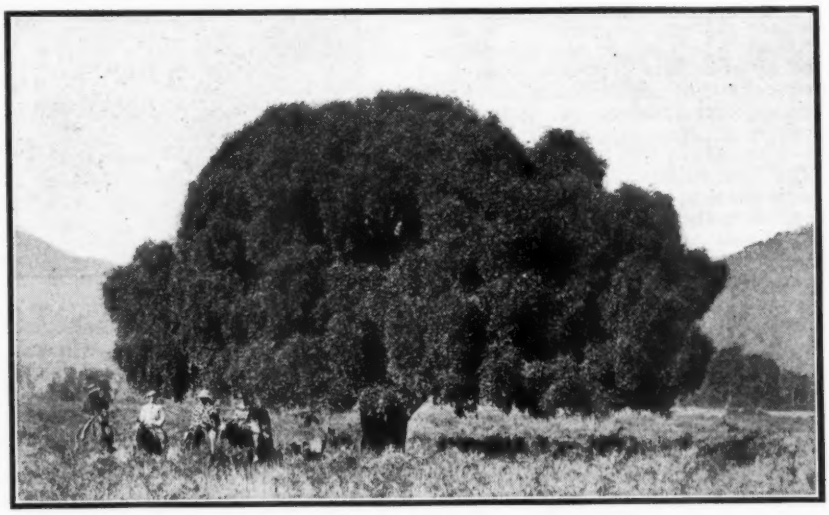


FIG. 4.—MAITEN—THIS IS BUT ONE OF THE MANY KINDS OF TREES THAT PRODUCE GREAT QUANTITIES OF NECTAR

American Bee Journal

What Constitutes a Good Queen

BY G. M. DOOLITTLE.

DURING the past year or more there has been a prize contest going on regarding which kind of hens will give the most eggs under the same conditions as near as may be, the same being reported in the Rural New-Yorker. Many different breeds were entered, breeds advertised to be the very best, as well as those "show birds bred to a feather." The Rural man sent in the same number as the others of what he picked from his farm stock which he called "scrubs," and when I last read in the matter these scrubs were keeping well up toward the 'head," out-equalling many of the show birds and others that were advertised the "best in the world."

With this vividly in my mind, I am asked to say something about "What constitutes a good queen." The breeder of "five-banded bees" will tell you, like the chicken man breeding "to a feather," that any queen which does not give four-fifths of five-banders is not worth having. Now, don't all laugh. I have been offered $50 for a queen that would so give, and $500 for a queen that would give every worker showing five golden bands on the abdomen, the two to be taken to some isolated—from other bees—island, the one to be used for rearing drones and the other for rearing queens.

This party desired "peaceful disposition" and "good honey-gathering qualities," together with the "white capping of section honey," if these could accompany the five golden bands; but if the others were not consistent with the bands, give him the bands and he would look out for the other points. Now, if he gets just what he wants along the "bands" line, I mistrust that some queen in an afterswarm in a box-hive in some farmer's yard, should the colony winter through, would be "way up near the head" in a contest for honey with anything that could be picked from these "bred to a feather" queens.

The Editor tells me that a *short* article is wanted, and here I have run on and told nothing of value to the one who is keeping bees for the dollars-and-cents in honey production. But, say, Mr. Editor, make sport of "bands" as we may, there is more money for the work in rearing "banded stock" for the wealthy men who have a few colonies and desire to run them for pleasure and profit than there is in rearing queens for the beekeeping specialist who has only *honey* in sight. Therefore, what constitutes a good queen depends upon our standpoint of looking. My aim in queen-rearing during the past 35 years has been *hardiness* of bees to stand our northern winters, for on this hangs the success of summer, long-lived bees having lots of energy and "vim" for rolling in the honey, white capping of comb honey, for this catches the eye of the consumer; bees fairly gentle to handle, and with a combination of these qualities, the best-of-all quality, the laying of a maximum number of eggs in time for the bees from these eggs to come on the stage of action when the flowers of our main surplus yield begin their bloom.

Now, the most of our queens come up to these requirements in our home apiary and outyards. However, some single queen, after being taken from her colony, and shipped from 1000 to 2000 miles away, may not prove, after arriving, equal to what she was before shipment, and thus an expectant purchaser may be disappointed. Notwithstanding the eggs and larvæ from such queens will have just as good queens in the purchaser's apiary as they would before she was shipped. At least such has been my experience.

Marietta, N. Y.

Italian Bees in Liguria

BY V. OREGGIA.

IN one of my former letters I promised to ascertain the exact confines in which live the two races of bees, in Italy. After a trip made for my business, I am able to give these limits, which coincide almost exactly with the information already furnished. To succeed best in making one understand at a glance the position of the places mentioned, I send a railroad table of the locality. On this I have marked with black lines the places where the common bees are found, with dots where the hybrids exist and with circles where the yellow bees are.

As a matter of course, eastward and northward from the circles marked, the bees are Italian and cannot be otherwise.

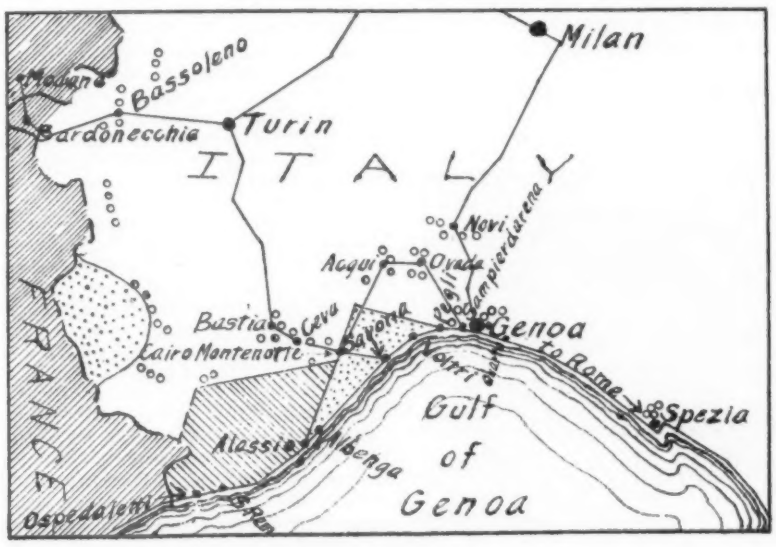
Our colleague, Mr. Edward Bertrand, who for several years spent the winter in Ospedaletti, in western Liguria, has called my attention to the fact that the entomologists were incorrect in naming the Italian bee *Apis ligustica*, for in that part of Liguria he has found none but common bees. However, although this is true for that part of western Liguria, it is different in the eastern part, for at Genoa and at Spezia, on the Genoa-Rome railroad line, I have never found any but pure bees.

In my tour, made especially for beekeeping operations, I had the leisure for thorough verification, for I not only watched bees in the fields, but visited rustic apiaries as well as those with movable-frame hives.

Proceeding eastward from San Remo, the first Italian bees I found were at Alassio, on the San Remo-Genoa line. In this place, which is the first station west of Albenga, I found, at the college "Del Salessiani," about 40 movable-frame hives well stocked with bees. Among them were six colonies with yellow bees, in one about one-fourth yellow, in the others less. At Albenga, 7 kilometers farther, I found no apiaries, but saw yellow bees on the flowers. Proceeding towards Genoa, the common bees diminished rapidly, so that at Voltri, 14 kilometers, I saw but a few common bees. At Pegli, 10 kilometers, I saw none but yellow bees. Desirous of verifying around Genoa, I found two apiaries, one east, the other west of the city. The first was at Sampierdarena (3 kilometers west), at the college of Don Basco. The other was at Quarto (8 kilometers east), at the home of Signor Nicolo Ageno. After having most carefully examined the bees, I found not a single common bee in either apiary. Similarly, in the confines of Piedmont, at Novi, Ovada, Acqui, only the pure yellow race can be found. Going back towards Savona, from the last named city, I found the first common bees at Carlo-Montenotte. There I visited two numerous apiaries, one belonging to Signor Carlo Brondo, the other to the attorney Rodino. The common bees were very few. From there I went towards Ceva and Bastia, where I again found the pure race.

On the line Turin-Modane, I found black bees altogether at Bardonecchia, but at the intermediate station of Bassoleno I visited two apiaries and did not see a single common bee.

I send a photo of our "honey-moon" and of the box in which we put it up for sale. I do not know whether it will interest you, but thought it might please your readers. As to the details of its manufacture, the glass rings are put into shallow frames, just like ordinary section boxes. The frames are adapted to fit them, and we use separators to



LIGURIA IN ITALY

American Bee Journal

secure regularity. The frames contain four moons and are 10x40 centimeters inside (4x16 inches). The first difficulty encountered was getting the bees to work in such small and numerous rings. This difficulty is eliminated by getting the bees to work out the foundation in large frames first, then cuting it of proper size with a circular cutter, making round pieces which exactly fit the inside of the ring. We then use a hot wire to make the comb stick to the glass ring in a few spots. In this way the good looks of the comb, seen through the glass, are not injured.

I have a few other inventions of which I will send descriptions, a smoker, a feeder and a patented box for transporting bees. Accept my thanks for sending me the Bee Journal which I receive regularly.

Tavole, Italy.

[An adequate idea of the mountainous aspect of the country described in the above letter may be obtained from the fact that, from Genoa to Arquata, on the way to Novi, there are 24 tunnels in a distance of 25 miles. From Genoa to Pisa, about 100 miles eastward, there are some 80 tunnels. The same thing applies all through western Liguria. This explains why there is a variation in the bees at such short range. The ruggedness and barrenness of the mountain tops, offer a barrier to the bees.—EDITOR.]

Introduction of Queens

H. SPUHLER.

THE artificial and rational rearing of queens is indispensable to the success of the modern beekeeper, who with the new methods obtains as good and as prolific queens as are produced by natural swarming. Unluckily there are many instances of the loss of valuable queens in introducing, in spite of the many safe methods recommended, which happen to fail in the most important cases, usually because an insignificant circumstance has eluded the notice of the beekeeper.

In every case the temper of the bees plays a very important role; if they are in good humor everything goes well, whether we examine the hive from end to end or remove only one comb, whether we take away honey or introduce a new queen. But their disposition changes, highly influenced by outside conditions, the season or the weather on one side, their normal or abnormal state on another side.

In the spring the bees are in better temper than in fall. When there is honey in the fields they are more tractable than in time of scarcity. In a normal condition, having a laying prolific queen, healthy brood and rich stores, they are more peaceable than in times of scarcity, of robbing, or while queenless or having a virgin queen.

Even when the queen has been accepted, the beekeeper cannot always be sure that the operation has been successful; the queen must not only be accepted, she must be *loved* by the bees. Love is the tie which unites her to the workers of the colony. I have observed cases where a young queen was accepted, but changed four weeks later. I suggest that such cases are much less scarce than the average apiarist thinks and that there are, every season, many queens changed in some apiaries, owing to an insufficient production of brood, caused by their being only tolerated by the bees instead of being loved by them.

The different methods of introduction of queens may be classified in two groups: The first group comprises the processes in which the new queen is introduced directly, unknown to the workers, the second those in which the worker bees are deeply conscious of their orphanage.

In the first group the processes are as follows: 1. As soon as the old queen is found, she is removed and replaced by the new queen. 2. A few combs are removed, and as soon as the old queen has been found and removed some bees from those combs are shaken down on the alighting-board and the new queen thrown down among them. 3. The attention of the bees is diverted from the new queen by sprinkling them with water, syrup or flour, or by smoking them vigorously. The first and second processes can succeed only when conditions are very favorable, when the bees are pleasantly disposed, when there is a good honey flow, when all the colonies have similarly the odor of the principal blossoms and the robbers are non-existent. In the third case, each worker is busy with her own troubles and does not attend to anything else.

Regarding the second group of processes, the requirement is that the bees be fully conscious of their orphanage, but that they be not yet supplied with queen-cells. These processes furnish the best results at any time or season. Usually the queens are introduced at the end of 24 hours, by using an introducing cage (such as is used in the United States and which I have made known in our country some 20 years ago). This cage is composed of a metallic screen closed with a stopper at one end of a cylindrical wooden tube containing food. The old queen is caught and placed in this cage hung between two brood-combs. The next day she is killed. The metallic portion of the cage is wrapped in paper soaked with honey and the cage is put back into the hive. At the end of two minutes, the cage will be filled with bees. It is then withdrawn, closed and exposed to full light, after removing the paper. The queen is introduced into the wooden tube, separated from the bees by a thin sheet of paper or foundation. At the end of 15 minutes this is perforated with a light wire and the bees soon reach the strange queen. As they are agitated and frightened and queenless otherwise, they readily accept her. The final stage of introduction consists in closing the end of the wooden cylinder with honey or candy. This is eaten by the bees of the colony and the queen is liberated. But it is never advisable to examine a colony in which a queen has been introduced, before a week elapses.

What are the causes that guarantee success? The cage has acquired the odor of the old queen which mingles with that of the new one. The caged bees bring to her the odor of the colony itself, so that there is little danger of suspicion towards her. But disturbances must be avoided and the queen must be released by the workers themselves.

Another good method of introduction consists in the use of a nucleus or fertilizing-box. But ours are built somewhat differently from yours. They are larger and contain a supply of powdered sugar mixed with honey or of granulated honey sufficient to last the bees two weeks. About 200 grams of bees (6 ounces) are placed in it with a 10-day queen-cell, and they are not allowed to fly before three days have elapsed. The air is furnished by screened openings in the floor of the nucleus, which may be closed with a sliding stopper. Another opening in the floor is to be used in uniting these bees to the queenless colony. This is temporarily stopped with a cork. When they are to be introduced to a full colony, after the queen is fertile, the entrance is closed and the floor opening stopped with only a thin perforated card. The bees must have an ample supply of provisions so as to be in normal condition. The nucleus is placed immediately over the brood-frames of the queenless colony, above the cluster. The latter readily ascertain that the nucleus above is a normal colony with queen, and after gnawing the card they are soon united in peace.

In a very short time the queen goes down to take possession of the larger space and devote herself to the greater task. If the advanced season prevents her from doing this, she may be readily compelled to move by taking away the nucleus and placing its combs cross-

ITALIAN LUNA DI MIELE—HONEY-MOON

"HONEY-MOON"—COMB HONEY

American Bee Journal

wise over the brood-combs of the colony. When the nucleus combs are of the same size as those of the hive, they may be readily exchanged. As a rule, in our German hives, separated by a single board, in a house-apiary, a queenless colony often joins its neighbor through a crack between the two, or if both have queens one of the queens may be killed and the two colonies peaceably united. The method just given is really not an *introduction* but the *uniting* of two colonies, the queenless colony being the larger of the two. Where all other methods fail, this gives good results.

When a colony has killed the first queen introduced to it, it will frequently refuse to accept another, especially if it has been queenless for some time. It is then useless to try further introductions. Mr. Cowan has mentioned an occurrence, over 20 years ago, in which five queens were uselessly sacrificed in this way. Mr. Bruennich reported an analogous case in the American Bee Journal of December, 1914. Ill-success should be attributed to abnormal conditions. The longer the queenlessness the more difficult the cure, because the bees become accustomed to their condition and lose even the energy and the desire to change it. They have grown old and nurses are lacking. Such colonies had best be treated by the method used with queenless colonies at the end of winter; they must be united to others. The nucleus method is the proper one for this purpose as the small colony is sufficient to save the other.

Zurich, Switzerland.

Disaster in Shipping Bees

BY GEO. F. HAYES.

ABOUT Aug. 8, 1915, I was confronted with the problem of moving three colonies of bees from a point in Illinois to southern Minnesota, about 300 miles.

My better judgment told me I should not take the bees. But I was going myself. I had given them pure queens, and had experimented with them; in fact, lived with them for two years, and I simply could not leave them behind. And, anyway, bees could be shipped successfully, for the bee literature said so.

Accordingly they were prepared for shipment. The covers were removed and wire-cloth nailed over the top. The entrances were closed in the same way. I tried to follow all the directions except I did not pour water upon the bees before shipping them. Each hive had two supers and enough honey to make the three weigh 250 pounds. They were started by express Sunday morning, and I was anxiously awaiting them Monday evening when they arrived.

All were powerful colonies when they were packed, but, alas! only one contained live bees when I opened them. The queen and a handful of bees had found a dry corner and huddled into it. In all of the hives the combs were broken down and the honey had run out at the entrances.

I was keenly disappointed and was bitter against the express company, for I supposed the disaster was due entirely to rough handling. However, I was not discouraged. I was determined to save my pure-bred queen and her handful of golden bees. I immediately bought a colony of black bees not more than three blocks from home. In the cool of the morning I closed the entrance with a cloth and carried the hive (which was heavy) home on my shoulder. I intended to replace the black queen with the golden Italian.

When I reached home I was again rudely disappointed to find that three of the combs had broken down and the bees were drowning. The hive had not been closed more than ten minutes and it had had the most careful handling. However, I saved enough bees to make a strong colony by winter.

Experience is a dear teacher but a good one. I learned that bees cannot be shipped in hot weather if the hives contain honey. In a few minutes a confined colony will generate enough heat to melt down the heavy combs. For this bit of information I sacrificed three colonies of bees, paid $6.00 to the express company and $2.50 for that last colony; and in addition I had to apologize to the express agent for falsely accusing his co-workers of carelessness.

If this enables some brother to avoid a similar experience I will console myself with the thought that my sad experience was not in vain.

Elgin, Minn.

Clipping Queens

BY J. L. BYER.

THE time for the first general overhauling of colonies here in the North is here again. The hunting of the queens so as to be sure that all are clipped constitutes the greatest part of the work at this examination. Please note that I say "all," for unless all of the queens are clipped I hardly think it worth while to bother taking off the wings of any.

On page 98, March issue, the question is asked from Indiana, why some writer, un-named, said that all should be clipped, and further added as a sort of mystifier, "If you don't know why try it and you will learn why." Dr. Miller, in reply, says that he does not see why it would not work all right to have only part of them clipped. As I have more than once made the statement both in private and public that it is necessary to have all clipped or none, a word in explanation is necessary.

First, I want to say once more what has already been told to beginners hundreds of times, that clipping queens in no way stops swarming; it simply provides a way to control this problem, and in the case of outapiaries I think that nine out of ten apiarists would not know how to manage the business unless queens were clipped. Under normal conditions, as all bee-keepers of experience are aware, the old queen issues with the first or prime swarm, leaving young queens developing in the hive. If the swarm issues with an unclipped queen, and the apiarist is not there, of course bees, queen and all are lost. If the swarm issues with a clipped queen, quite often after the bees have returned to the hive the clipped queen will find her way back into the hive again and the process of swarming will be repeated again the next day. I have heard of swarms coming out this way for three days in succession. However, in the event of the queen being lost during the first or subsequent swarming of the colony, the bees will return to the hive and no swarming will again be possible until the first young queen hatches and goes with them. But as there will be from six to ten days of interval before a young queen hatches, the apiarist will have time to discover that things are not as they should be in the hive, and measures will be taken to handle the situation and prevent any more swarming with the chance of losing the bees. Under normal conditions a swarm may be expected to issue in about nine or ten days after first swarming, in case the old queen was then lost, but sometimes swarms are held back for a few days on account of bad weather, and then the second swarming occurs earlier, as during the period of waiting for fair weather the started queen-cells will be maturing all the time.

Of course, this condition is more apt to occur in outyards where no one is in attendance, but even for a home apiary the practice of clipping is a great labor saver. Who has not had swarms issue on a real hot day, and probably cluster on the top of a tree? Perhaps to make things more aggravating the bees persist on alighting on a tree trunk or large limb. With clipped queens all that is necessary when a a swarm issues is to get a hive ready, and while the swarm is in the air lift off the parent hive and set it aside, placing the prepared hive on the old stand. The queen of course has been picked up and placed in a wire-cloth cage.

As the bees miss their queen and come rushing back, how simple and easy to just place the queen at the entrance and allow bees and all to rush in! Supers from the old hive, including bees and all, can be placed on new hive on the old stand, and the job is done. All this is common practice with experienced beekeepers, and is simply given for the benefit of beginners constantly joining the craft.

But to return to the question as to why it is necessary to clip all, really the temptation is strong to repeat the advice "try it and learn why," for by so doing the matter would be cleared up so much plainer than by words, if things turned out as they did twice in my experience, when part of the yard was clipped and we happened to have heavy swarming seasons. A colony would swarm having a clipped queen. Just about the time we picked up the queen in a cage and thought of changing hives around, out would come a swarm with unclipped queen, and of course all would go together. It was impossible to separate the bees with any degree of satisfaction, and one never was sure but what the unclipped queen might be shaken with the bees if any attempt was made to divide them. Swarms will sometimes mix up when all have unclipped queens, but they will not mix half so badly as when part are clipped and part un-

American Bee Journal

clipped. They will *always* go together if two swarms issue at nearly the same time, one with an unclipped queen and the other clipped, and that cannot be said when none at all are docked.

At any rate, the two seasons we were in this dilema caused us to come to the conclusion that we must clip all or none, and I feel sure that if our Indiana correspondent has a fairly large apiary and will this spring clip half of the queens and leave the rest alone, granted that the season will be bad for swarming, he will conclude that my advice is practical.

Markham, Ont.

No. 16.—The Honey-Producing Plants

BY FRANK C. PELLETT.

Photographs by M. C. Richter, San Francisco.

IN this our 16th installment of the honey plants, we will consider some which are frequently reported as sources of nectar on the Pacific Coast. Some of them occur in the East, but are seldom mentioned as sources of nectar east of the Rocky Mountains. For the photographs which appear this month we are indebted to M. C. Richter, of San Francisco.

PIN-CLOVER OR FILLAREE.

The pin-clover, alfilaria or fillaree, *Erodium cicutarium*, is widely distributed in the old world, and in this country has been naturalized from Europe. It is especially well known on the Pacific Coast from British Columbia to southern California. There it is said to be one of the most valuable wild pasture plants.

It is also called pin grass and Heron's bill. It has a long period of bloom, beginning in February or March in California, and in some places continuing through the summer. It produces an abundance of pollen and considerable honey of good quality. In

FIG. 73.—FILAREE OR PIN CLOVER—A COMMON HONEY-PLANT IN CALIFORNIA

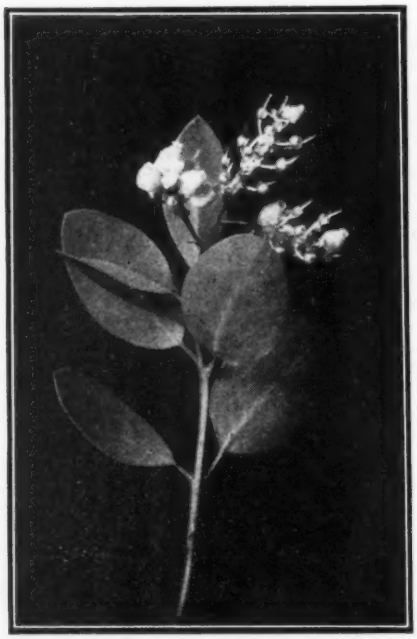


FIG. 74.—MANZANITA BLOSSOMS

Gray's botany it is listed as "stork's bill," and is mentioned as scarce in New York and Pennsylvania. It is recorded as occurring in Alabama where it apparently was carried with railroad ballast. June is given as the blooming period in the vicinity of Mobile.

It is also known in several places in Connecticut, where it is said to bloom in May and June. Prof. Pammell states that it is abundant in the dry soils in the Salt Lake basin and from Colorado to Texas. The seeds cling to the wool of sheep and this aids in its wide distribution.

Figure 73 shows the plant with blossom and seed pod. It is from the peculiar shape of the latter that it gets the names of "stork's bill" and "Heron's bill."

MANZANITA OR BEARBERRY.

Figure 74 shows the blossoms and leaves of the manzanita, which is seldom heard of as a honey-plant east of California. The following information is copied from Richter's "Honey Plants of California:"

"*Arctostphylos*, manzanita, bearberry. Throughout coast ranges, Sierra Nevada foothills, and San Bernardino Mountain (2000 to 9000 feet), November to Februa1y.

"The honey is amber and of excellent flavor, much like manzanita itself (Colusa county); pollen. San Diego county reports a white honey from the manzanita. One of the most important honey-plants to induce bees to early breeding. In some parts of Monterey, Colusa and Eldorado counties a 20 to 40 pound surplus is obtained, and on very warm days (Monterey county) nectar can be shaken from the bloom. A beekeeper from Applegate reports it to be his best honey yielder."

The *Arctostphylos uva-ursi*, bearberry or beargrape, according to Gray, occurs on the rocks and bare hills from New Jersey and Pennsylvania to Missouri and far north and westward. It is also said to be common in Europe and Asia. It is recorded in the local lists of plants of Connecticut and Ontario.

It is a little surprising to us to find plants which are so highly regarded in California reported from so many eastern localities, although, probably because nowhere abundant, they are not

American Bee Journal

known as sources of honey. Although Richter's list does not give the species from which their honey is secured, it is probably not *A. uva-ursi*, which is found in the East, but *A. pungens* or *A. tomentosa*, or other species peculiar to the west coast.

The leaves of the eastern species are much used in medicine. It is said to be an astringent tonic used in diseases of the liver.

MUSTARD.

Figure 75 shows the common yellow mustard, *Brassica campestris*, which is common all over North America and in Europe. The black mustard, *B. Nigra*, also has a very wide distribution in Europe and America. There are about 50 species, including the closely related cultivated varieties of cabbage, turnips, rutabagas and mustard. All produce some nectar, and in some localities they are an important source of nectar. In parts of California, notably the Lompoc valley, mustard is grown commercially for seed; much honey is stored from this source. The honey is said to be light in color and mild in flavor. Apparently there is much variation in the amount of nectar, according to climatic conditions. In any locality where it is sufficiently abundant mustard can be expected to add something to the product of the apiary.

GORSE OR FURZE.

Gorse or furze *Ulex europaeus* (Fig. 76) is a spiny evergreen shrub with yellow flowers that is common in Europe where it is said to be used to some extent for fuel and fodder. I can find but few references to it in this country. In California it is said to bloom during all seasons, although much more freely in spring. Richter reports it as a very good honey-plant on the hills of Marin county.

Atlantic, Iowa.

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FIG. 75.—COMMON YELLOW MUSTARD

Swarm Prevention for Comb Honey

BY GEO. W. STEPHENS.

ONE of the greatest problems confronting the man who would produce comb honey is a system of management that will effectually prevent swarming and hold the bees together and keep them at work storing honey without sulking or desiring to swarm; a plan that requires little labor and that can be used in an outapiary for comb honey without watching for swarms. From the viewpoint of the average beekeeper bees swarm for lack of room for the queen to lay to rear more brood to store more honey to rear more brood to pester and torment their keeper. If a colony of bees is provided with plenty of room, however, and all other conditions are ideal, they have no valid excuse for swarming; and if they do swarm under such ideal conditions it may be attributed to the innate contrariness of bee nature.

Dr. Phillips, in his book on "Beekeeping," says: "The lack of adequate space for breeding is a common condition in colonies from which swarms issue." This and a little experience I had two years ago have helped to confirm my suspicions that a crowded condition of the brood-nest is the principal and primary cause of swarming. I was sent for to take a colony of bees from the attic of a farm house. They had been in that attic for four years and had not in all that time cast a swarm. I found them in a corner near the chimney, and their combs filled a space a yard square and hung down from the rafters fully two feet. They certainly had an abundance of room to spread (18x36 feet), and apparently had not thought of swarming. I presume they might have swarmed when their "hive" became crowded if they had not been removed.

Swarming may be almost entirely prevented by certain timely manipulation, and it is up to the beekeeper to adopt a system that will best serve the purpose. Almost any system of management that will hold the colony together during the honey flow will result in an increase of surplus honey, but most of the plans recommended and practiced by many beekeepers demand too much time and labor. For instance, opening hives and cutting out queen-cells once a week, as some do, is no small job, and frequently leads to sulking and does no good because the condition that causes swarming is not changed thereby. Watching for and running after swarms is a great waste of time. Jumping the parent colony from one side of the swarm to the other every few days to catch the flying bees is not only a waste of time but of main strength and awkwardness besides.

Shaken swarms, like natural swarms, unless the brood is united with the swarm, divide and weaken the working force of the colony so that the swarm does not get the benefit of all the brood as it emerges, and it is thereby deprived of the usual and necessary daily reinforcement of young bees to take the place of the daily loss of old bees; consequently the swarm constantly dwindles for three or four weeks before there are any young bees to keep up its strength. A swarm is not as strong and does not do as good work in the sections three weeks after it issues as during the first week. By that time it has spent its gathering force, the honey flow may be drawing to a close, and there are a lot of unfinished and lightweight sections in the supers with not enough bees to finish them; whereas if the strength of the colony had been maintained and the bees and brood held together the sections would have been well filled and sealed, and comparatively few, if any, unfinished ones would have been found.

Now, to hold the bees together and keep them contentedly at work storing honey and have no swarming or sulking it is necesssary that they have adequate breeding space in the proper place and given at the right time. Some try to prevent swarming by adding a super of sections above an excluder, but this will have no effect because the crowded condition of the brood-chamber remains the same.

I have tried out and adopted what was to me a new plan for the production of comb honey. It may be that somebody has tried and abandoned something similar, but I am not so informed. The late Oliver Foster, in an article in one of the bee-papers some

FIG. 76.—GORSE OR FURZE

American Bee Journal

years ago, wrote that shaken swarms ought to have a restricted access to their brood, and that they would be more contented and would not swarm out. Acting on this idea, which had been developing in my mind for some time, I prepared some hives and tried the following scheme to my entire satisfaction. It is needless to say my enthusiasm has gone up several degrees.

This is the plan: Prepare two bottom boards for each colony to be operated by cutting a slot about ⅜x5 inches in one of the side-cleats of each board equi-distant from the ends. Place the colony on one of these boards, closing the slot temporarily with a piece of lath tacked on. Now follow Mr. Doolittle's plan, and in early May set a hive-body of empty combs on top with a queen-excluder between. This will prevent the brood-chamber becoming congested and will delay swarming as in extracted honey production. Then just as the main honey flow opens I deviate somewhat from the Doolittle plan, and instead of separating the brood from the bees, I lift off the top story and set it on the other bottom-board by the side of the first one so that a slotted bridge between them will form a passage from one hive to the other through the slots. A strip of excluder-zinc is nailed to one side of the bridge to hold the queen where she is put. The brood-section is moved to one side enough to allow the other section to take its place on the stand.

Find the queen and put her and a frame of unsealed brood in the new hive, or shake the bees out if the queen cannot be found readily. Close the entrance of the brood-section and let the bees use the new entrance, now at the old location. Slip a piece of section under the back end of the brood-section to raise it from the bottom-board an eighth of an inch, or raise the cover slightly in order to give the brood sufficient ventilation. Put a couple of supers of sections on the new hive with an excluder under them, and the bees will do the rest. The capacity of the hive is now doubled, the colony has not lost its brood and has plenty of room for breeding and storing. The bees will go to work with a rush and transfer the honey in the combs to the sections and the queen will fill the hive with new brood, while the old brood in the other hive will be well taken care of and none of it lost. The natural daily loss of flying bees is constantly recruited by the emerging young bees from the old brood-chamber, which will maintain a rousing colony to the end of the honey flow without a break, and there will be no dwindling during the next three or four weeks, as is the case when the brood is separated from the swarm.

Before the brood has all emerged, say in about two weeks, I make a reverse shift by returning the queen to the original hive, transferring the supers and opening the closed entrance and closing the open one. This causes the colony for the second time during the honey flow to work with the vim and energy of a prime swarm during its first week. If I want increase, after a few days I set the queenless section on a new stand, giving the brood a queen or a cell and let them build up, thus making my 100 percent increase, If increase is not wanted I let the brood all emerge and insert a Porter escape for a day or two, then set the empty combs away to be used in the same way the next season.

And what is the result? Well, I have extra-strong colonies at a time when they will do the most good, and, as Mr. Doolittle says, "Very strong colonies will store a surplus of honey when weak or only fairly good colonies will hardly make a living." Compared with natural or shaken swarms one can get an average of anywhere from 50 to 100 percent more honey and 100 percent increase of colonies or no swarms at all, as he chooses. The sections are invariably better filled and sealed. The plan has the advantage of two brood-nests—one full of brood and the other being filled to hatch later. If it is true, as claimed, and I have no doubt it is, that too many young bees in the hive will create an unbalanced condition and discontent of the colony, the double hive affords the young bees a place to stay out of the way of the workers until they are old enough to go to work, as they do not come out of the brood-section until they are several days old. I have kept bees on a side-line for "going on" 29 years, and I never have seen a colony too strong to do good work if it has room according to its strength.

There is, of course, some work to this plan, but a man knows what he is doing and what the bees will do every time, and every move is a profitable one, considering the extra amount of honey he will get; even the last move gets a new colony of bees from every hive, worth $5.00 each, and the faster one works the more he will make and the sooner he may become a millionaire.

If any beekeeper would like to have his bees do something worth while, and then some, in comb or extracted honey, in either eight or ten frame hives, let him try the Stephens twin-hive method. It is sure and easy, and there is no rainbow chasing attached to it.

Denison, Iowa.

Why and How I Paint Comb Foundation

BY EDWARD HASSINGER, JR.

MY experience with painting comb foundation with wax is limited to two years, and 3000 Langstroth frames for brood-combs and extracting combs.

WHY I DO IT.

First—To secure as nearly all perfect worker-comb as it is possible to get in Langstroth frames.

Second—The bees will enter and occupy whole supers of this painted foundation as readily as they do supers of all drawn combs. There is something about it that is very alluring to them; they will draw it into comb in the smallest kind of a honey flow and will fasten the foundation to the end-bars before drawing the comb. In a heavy honey flow I have repeatedly seen whole supers drawn into comb ⅜-inch in length in less than 24 hours and some honey stored in the cells. If any one claims that the bees would not take time to thin down the base of the cell walls in a heavy honey flow I should say he had a freak colony of bees under his observation.

Third—I have reason to believe that it pays in dollars and cents. More definite statements could be made on this subject, if some one will determine just where the dividing line may be drawn between the voluntary and involuntary secretion of wax in the average colony of bees.

Can any one prove that a colony of bees with all drawn comb in the hive will produce more wax involuntarily than is required to seal the ripened honey, etc.? If they do, what do they do with it if they deposit it all in the hive in the form of brace comb? I am then satisfied that it does not amount to much. Finding wax scales on the bottom-board does not prove that the bees had no use for them in the supers. The question is: Would the bees carry their own wax scales outside of the hive simply because the combs were all built in the hive?

A drawn comb Langstroth size contains about five ounces of wax. A sheet of medium brood foundation contains two ounces of wax. A sheet of light brood foundation contains one and three-fifths ounces. It takes no more time to paint a sheet of light brood foundation than it does to paint the medium brood foundation; therefore, the advantage is in favor of the light brood foundation.

If I add not less than one ounce of wax to each sheet of light brood foundation this would make the sheet two and three-fifths ounces in weight, or one-fifth ounce more than half the wax required for a full drawn comb. One hundred and twenty-five pounds of wax would make 1000 sheets of medium brood foundation at a cost of 11 cents a pound or $13.75, and it takes only 100 pounds of wax to make 1000 sheets of light brood foundation at 13 cents a pound or $13.

The balance in favor of the light brood foundation would be 75 cents in cash and 25 pounds of wax, not counting the labor of painting this wax on the foundation, but as it is assumed this work would be done anyhow and enough more wax added to equal one ounce per sheet.

Assuming that it takes 10 pounds of honey to produce one pound of wax, and if honey is worth 10 cents a pound, then it cost $1.00 to produce one pound of wax. Then by buying wax at 30 cents a pound a saving or gain of 70 cents a pound is made.

One thousand sheets at one ounce per sheet would require 62½ pounds of wax; same at 30 cents a pound would be $18.75. It would cost $62.50 worth of 10-cent honey to produce this wax, the balance in favor of buying the wax and painting it on the foundation would be $43.75 plus the 75 cents that it costs less to have 1000 sheets of light brood foundation made, and have it better liked by the bees than any lighter or heavier foundation made by machinery. The price of labor deducted from the above mentioned figures would still leave a favorable balance. It takes from 1½ to 2 minutes to paint one sheet of foundation of Langstroth size

American Bee Journal

with one ounce of wax.

This work should be done in the winter when time is not worth so much; in fact, it must be done in cool weather, the foundation should be cold and the wax hot for best results.

I have my foundation made to order and have it fit the frame less one-eighth inch from each end-bar, and one-fourth inch from the bottom-bar, the most perfect all worker comb is secured with a space of three-sixteenths inch between the foundation and the bottom-bar.

The frames should be all wired and the foundation fastened, and the wires imbedded in it before starting to paint it with wax. I do not want any combs without being wired, and I believe no argument should be advanced in favor of trying to get along without wires.

I use a small two-burner oil stove and a tin pan about 8x8 inches wide, 3 inches high. A wire screen is fitted into the bottom of the pan in such a way that the screen does not touch the bottom of the pan; this is to hold up the brush. Then wedge a square stick in between the sides of the pan at the top; the wedge should be in the center of the pan and nailed through the pan into the stick; this is to brush the surplus wax out of the brush before using it. The brush is an ordinary paint brush 3 inches wide, with the hair or bristles of the brush 4 inches in length.

About half-way between the top and bottom of the hair are placed two sticks, one on each side of the brush crosswise of the hair. Each stick should be 4 inches long, ¾ of an inch wide, and 3-16 of an inch thick; they are nailed together through the hair of the brush tight enough to force the hair of the brush all in one narrow straight line, at the same time making the brush one inch wider at the bottom. To keep the sticks from slipping down fasten them to the handle with a tack and a piece of wire or a crate staple.

With the brush fixed in this manner much better and faster work can be done with little danger of closing the bottom of the cells with wax if the proper amount of wax is brushed from the brush before using it. If many cells are closed with wax at the bottom it may result in drone-comb being built on the spot.

After using the brush for some time the bottom of the brush will form into a curve; this is an advantage in applying the wax by brushing against the curve with the first stroke or two and then reversing the brush. Use the same form to hold the frames with the foundation that you use for imbedding the wires into the foundation. Only practice can teach you just how much pressure to use for a uniform distribution of wax over the side walls of the foundation.

The temperature to keep the wax at depends upon how fast you use it and the temperature of the room. The colder the foundation and the warmer the wax, the better it works. Have the wax broken in small pieces, and add some continually as needed.

I have sent a copy of the above to Mr. Henry Vogeler, as he has a patent on the process. I asked him to comment on my article. He comments as follows to which I reply again:

"You are ahead of other statements, *i. e.*, 8 or 10 sheets drawn out in a day. I had Dadant's extra thin surplus grade comb foundation, Langstroth frame size, over 15 sheets to the pound, and when painted only on top I had over 13 sheets to the pound. I paint on a board same size as sheet and have it wet. Your brush is too long about two inches. I got the best. Wax should be melted, not hot. I paint only on one side. I don't imbed wire. I wax the wire and weave it in, two on one side and two on the other. You are too slow to paint ten sheets in six minutes.

"The beeswax scales 1-5 inch wide, 1-180 inch or less thick will likely give 75 percent more comb honey and no fishbone in the center.

"Process to make beeswax scales has been allowed in Patent Office. Royalty one-fifth to one-tenth of a cent per Langstroth frame size sheet."

Oakland, Calif. HENRY VOGELER.

REPLY TO MR. VOGELER'S COMMENTS.

It is quite evident that Mr. Vogeler uses only a fraction of the amount of wax that I use per sheet of foundation. Therefore, the difference in results and the difference in the time for painting. In warm weather it is necessary to wet the board.

Evidently Mr. Vogeler does not get the idea of my brush. It is only two inches long below the sticks as explained before, and the sticks help to feed the liquid wax for a longer time, because it stays hot longer between the sticks.

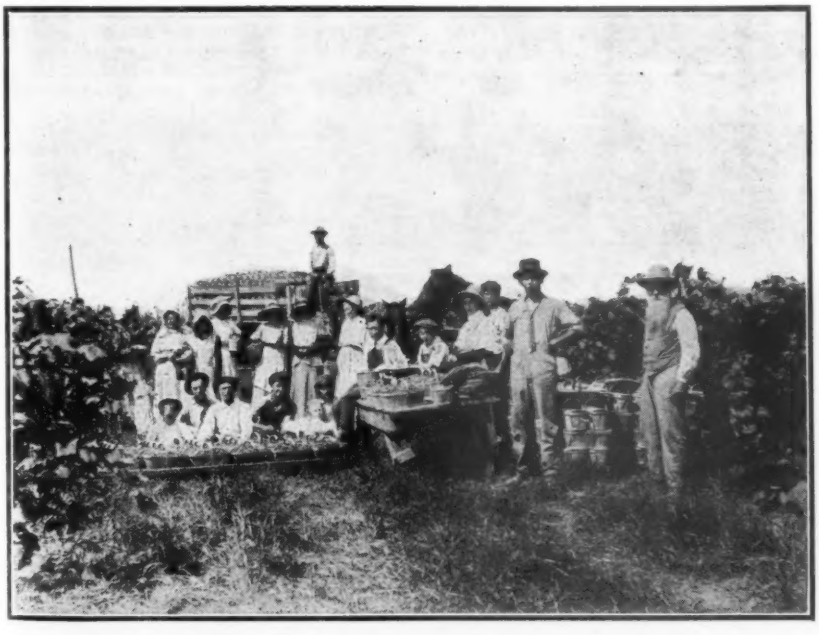
I cannot agree with Mr. Vogeler's statement of 75 percent more comb honey with no fishbone. I agree with the no fishbone (midrib) part, but the best way to make a comparison between the painted and unpainted foundation would be by stating definitely how much wax by weight is added to a certain size sheet of foundation if enough wax is painted to equal two-thirds of what the same size would weigh in drawn comb. Then I should say that it was equal to drawn comb or very nearly so. Therefore, the value of wax-painted comb foundation must be determined by the amount of wax painted on it by weight.

Many beekeepers told me personally at the conventions that they were convinced it was a good thing, and wanted to know if the manufacturers could or would have foundation painted with wax and sell it as such, especially for *comb honey*. Manufacturers will please take notice.

Greenville, Wis.

[There is need of an explanation of Mr. Vogeler's last statement, concerning the patent on beeswax scales. Mr. Vogeler took a patent, years ago, on painting the sheets of foundation in a manner similar to that mentioned by Mr. Hassinger. But the wax scales patent is another. This consists in a method for manufacturing artificially wax scales for the bees to use in building comb.

To the enquiry of Mr. Hassinger as to whether bees produce more wax involuntarily than is needed to seal the combs, we will reply that the consensus of opinion among students is that the bees produce wax involuntarily only when they are compelled to remain filled with honey. Bees that gather honey from the blossoms, and bring it to the hive to deposit it at once, produce a very inconsiderable amount of wax. But when the crop is so heavy that the cells are all filled, the young bees remain loaded with honey until wax is produced, while the field bees keep on bringing more. Then is the great amount of wax produced which is needed to build more comb to store this surplus. It is a very wise arrange-



GREAT PICKING SCENE AT E. J. BAXTER'S AT NAUVOO, ILL.
(See our first article in this issue.)

American Bee Journal

ment. We do not believe the bees waste any wax except in extraordinary circumstances, such as the breaking down of the combs, when we have seen it plastered indiscriminately on the wall of the hive, in little lumps. This was evidently because the space where combs could be built was in such a mess that it could not be occupied by the builders.

When a swarm emerges, the young bees in it are often loaded, not only with honey, but with wax scales ready to emerge and that explains why superficial observers believe that wax costs but little to produce at swarming time. The honey consumed for two or three days previously is not taken in consideration, by them.—EDITOR.]

Honey as a Medicine

BY A. F. BONNEY.

SO much has been said about honey as a medicine that I finally became curious, and having investigated thoroughly give the result to the fraternity.

In the United States Dispensatory, which is the reference book used by doctors and druggists when drugs and medicinal substances are concerned, we find it stated that: "Honey possesses the same medical properties as sugar, but is more disposed to affect the bowels. Though largely consumed as an article of food, it is seldom employed medicinally except as a vehicle. Its taste and demulcent qualities render it a useful addition to gargles, and it is sometimes employed as an application to *foul ulcers*."

This compels us to look up sugar, and under the head of Saccharum we find the following statements: "Medical and Pharmaceutical Uses. As a demulcent, cane sugar has been used to some extent in *catarrhal affections*, especially of the respiratory tract..... According to Dr. S. Meslach (now unknown to fame), glucose, when given in doses of 6 to 6½ ounces a day in the form of the concentrated syrup, acts as a powerful diuretic.....and is useful in the treatment of *cardiac dropsy*.

In pharmacy, sugar is used to render oils miscible with water, to cover the taste of medicines....."

I wish to state that many substances are retained in the Dispensatory which are practically no longer used as remedies for disease. Wormwood is one of them, and why it and others are retained I cannot understand. Whisky held an honored place in the venerable volume for a century, but has been eliminated, and sugar is no longer used as a remedy for foul ulcers and cardiac dropsy.

As a matter of 90 percent of human ailments will "get well" if left severely alone, I shall not discourage the use of honey as a cure-all, for it is the least harmful of all the vaunted "cures," while if it becomes as popular as whisky the sales will increase tremendously. It does not matter that I consider it a poor dressing for the hair, not a successful foot ease, and lacking value as a remedy for appendicitis. Our object is to sell honey, and it will be impossible to falsify ads to aid that object as much as is done for many other things, but this advertising a delicious food product side by side as a feed and a remedy for foul ulcers is repugnant to me, and I honestly believe that for every ounce sold as a remedy we injure the sale of ten as a food or table sweet.

I have before me a card issued by a neighbor, which reads as follows:

"Honey is Nature's one pure sweet."

"Honey is both food and medicine."

"Money invested in honey is an investment in health."

"Honey is cheaper than doctor bills."

"Eat plenty of honey and you'll save doctor bills."

"If you want *good* honey *every time* buy it of ———."

This card was vastly better, as a truthful production, with only the first and last lines, to-wit:

Honey is Nature's one pure sweet.

If you want *good* honey *every time* buy it of ———.

Who, besides honey producers, may I ask, vaunt their product as medicinal agents, and, again, why is it necessary? Does it do any good? Does it sell a pound of honey? People buy honey because they want it, and if not for table use they will practically never buy it for other purposes. Once in a great while I sell a pound to fill a demand for something for a cold, but 99 percent of my honey is sold to be eaten, and because the people want a delicious sweet.

Buck Grove, Iowa.

Net Weight on Sections—Objections of a Practical Beekeeper

BY FRANK COVERDALE.

IT is very plain to me that the Government should not require the stamping of the net weight on the sections of comb honey, because it is an impossibility to accurately perform that requirement.

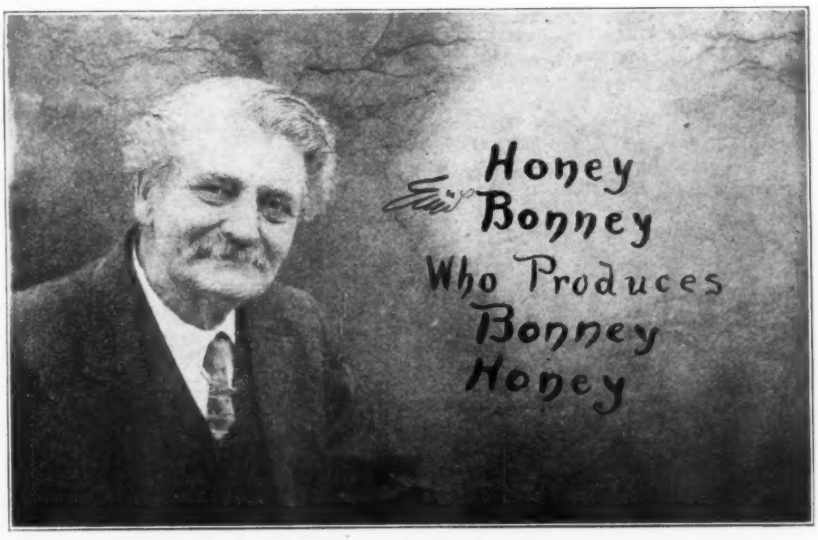
The producer of comb honey has no control of how many ounces the bees will put into each section. The net weight law should be forced upon those only to whom it is applicable. The producer who has secured 20,000 sections has a job the accurate doing of which is unthinkable. And if those sections are not stamped correctly how is the consumer to know what he is getting unless he asks the retailer to weigh them again, for they may vary from ½ to 6 ounces?

The producer of extracted honey can readily fill all the requirements of the law, like any other packer of commodities, even to the fraction of an ounce. But the producer of comb honey can't change its weight. A ruling for the poultry owners to mark each egg, or for the farmer to mark each ear of corn its actual or minimum weight would be no more of an impossibility. Neither is there any method by which he can compel the bees to help him one iota in securing greater uniformity. It is not to be wondered that so many of the sections put upon the market vary from the weight marked upon them. I have been through this trial and call it a farce at best.

I have come to the conclusion that the only thing to do is to appeal to the Government to set aside all rulings on the comb honey put upon the market and let it sell by the piece, just as they retail apples, or melons, or oranges, or pineapples. For the producer has no more control of the weight of a comb of honey than he has of cantaloupe or a pineapple. The buyer must use his eyes in either case and judge of the weight or value of what he purchases. If he does not rely upon his judgment, he can always require the retailer to ascertain the weight for him.

I for one am in favor of appealing to the Government to set aside this impossible requirement, which if tested out would probably not stand in the courts, for the simple reason, already mentioned, that no one has any control upon the net weight of each package.

Delmar, Iowa.



A. F. BONNEY THE ORIGINATOR OF THE HONEY STICKER

American Bee Journal

Comb Honey and the Federal Net Weight Law

BY FRANK RAUCHFUSS.

[Among the producers of comb honey on a large scale who are able to see both sides of this question, none is in a better position to give the consumers' side than Mr. Frank Rauchfuss, of Denver, who has handled hundreds of carloads of honey for the Colorado Honey Producers. We sent him a copy of Mr. Coverdale's letter and insert his comments, thus giving both sides of the "net weight" question.—EDITOR.]

QUESTION:—Is the application of the net weight law to comb honey justifiable?

My answer would be, *most assuredly*. I will state a few reasons why, by showing up some of the weak spots of honey marketing conditions, past and present.

Comb honey in glazed sections was being sold by weight. The consumer ordering a pound of honey and generally paying a fancy price for it, 25 to 30 cents received from 8 to 9 ounces of actual honey, comb included. This looks pretty much like a case of selling glass and wood and throwing a little honey in the bargain.

Is it any wonder these consumers got the idea that comb honey is a luxury that only the wealthy can afford? We have seen some cute tricks played by producers to get the best of the other fellow; one party used tall two-piece sections, to make the honey weigh up, the bottom piece of the section was made of *⅜-inch lumber*.

Others in localities where comb honey was sold by the case, adopted narrow sections, inducing the building of a thin comb, so as to give as little honey as possible and still make a fair showing.

We have seen cases of non-separatored honey, the front sections facing the glass looking all right, but woe to the fellow who would buy by front appearances, back of this front could be found pot-bellied sections weighing 20 ounces, next correspondingly lean ones weighing only 12 ounces; in some instances two or three sections would be found built solidly together, so they had to be handled and sold as a unit.

We don't want to imply that separatored honey could not be found just as objectionable, because there are some beekeepers who would not hesitate to put white and dark honey, light and heavy sections and even culls in the same case; to the utter disgust of every person who has anything to do with such a case thereafter.

With such conditions existing in the principal markets of the country, the dealer should not be blamed for refusing to handle comb honey.

It is a well established fact, that no commodity can be handled satisfactorily in large quantities aud with profit to the producer of it, unless it is conscientiously graded and packed in uniform packages.

The closer the producer can come to the ideal of having all sections of honey in a case practically alike in color, weight and finish the better price he will realize, when a fair minded dealer finds that he can absolutely depend upon said beekeeper's pack.

Now, let us see what effect a reasonable enforcement of the federal net weight law has in bettering the above mentioned conditions.

The beekeeper who wishes to put up comb honey in glazed sections still enjoys this privilege, but he has to mark each section either with the actual *net weight* or a certain adopted minimum net weight. The consumer, who is willing to pay for glass, can readily see about how much actual honey he gets.

The beekeeper who previously used thick lumber in his sections will not see any profit in doing so any longer and adopt regular stock material.

The production of thin-comb, lightweight sections is also likely to be dropped, since net weights must be stated.

Non-separatored honey will likely be a thing of the past in many markets, as it will be very difficult to comply with the net weight law when *packing a poorly produced article*. We realize that some beekeepers do produce a very satisfactory article of non-separatored comb honey, but it cannot be denied that their number is surprisingly small.

The majority of beekeepers who do produce a good article of comb honey and who are willing to grade and pack their honey in an honest and business-like manner, will no doubt soon realize that *the federal net weight law does not increase the cost of production materially* (if weighing and grading is done in large quantities the cost of weighing will not exceed two cents per case), while the elimination of the aforesaid objectionable features cannot help to but ultimately bring prices to a more uniform basis.

By grading and packing our honey right, by enabling the consumer to readily find well-produced honey, which is properly marked, attractively displayed and is sold at a reasonable price; by our working either co-operatively or individually to accomplish this end and by supplementing it with well directed advertising, we should soon be on the way of seeing pure honey in one form or the other on the tables of the majority of our people.

Denver, Colo.

That Net Weight Law

BY DR. C. C. MILLER.

IN considering the law as to marking weight on sections, the first thing we must do is to dismiss from our minds the thought that the law is made for the benefit of the producer. It is made for the benefit of the consumer. That is as it should be; the greatest good to the greatest number; and the number of consumers is twenty, fifty, a hundred-fold more than that of the producers. If the consumer gains more than he loses by having the weight stamped on the section, then the section should be so stamped, "and there's an end on't."

No use to say that there's any impossibility about weighing each section. Thousands upon thousands of sections have been accurately weighed; in fact, in years gone by the great majority of them were thus weighed. The fact that they were weighed by the grocers doesn't change the case; if a grocer could weigh them so could a beekeeper.

"Oh, but the grocer can weigh them one at a time as he sells them, and the beekeeper with 1000, 10,000, or more to be weighed all in one lot would be swamped." Well, now, which will consume the greatest sum total of time, to weigh 1000 sections all in one job, with everything in the most convenient shape for it, or to have a grocer make a separate job of each one, in many cases adding the time of the customer who stands waiting?

"But do you realize that a man with 20,000 sections to be got ready to ship at a given time would be utterly unable to get through so long a job in the given time?" Well, there is no law against hiring extra help, and there are plenty of people waiting to accept such a nice little job as weighing sections.

Of course, when the grocer weighs the section he gets his pay for that extra work by the extra profit he gets on the section. If the weighing is shifted from the grocer to the producer, and if the producer can do the weighing as cheaply as the grocer, then the cost to the consumer should not be increased.

"Well, if you insist upon anything of the kind, the beekeepers ought to be paid for the extra work, while the fact is that they'll not get a cent more, and the result will be that they will be driven out of the business, and there will be no comb-honey produced. Do you want that?" That would be rather deplorable, and if you can establish it as a fact—or if you can establish the fact that consumers would lose more than they would gain by the stamping of each section, then it is a pretty clear case that the law should be repealed.

It is pretty certain that it is to the advantage of the buyer to know just what he is buying and how much, but if he must pay too much for that knowledge he will be the loser. If the present law results in raising the price to the consumer, then it is hardly a good law. It looks a little as though it would thus result when comb-honey producers are thinking—or at least talking—about giving up comb-honey production. Should any considerable number of them do so, it must inevitably make comb honey scarcer, and so more expensive to the consumer. But there is a possibility that these beekeepers are more scared than hurt, and that there will be no diminution in the number of comb-honey producers, if in the long run they find that the law puts no burden upon them for which they will not receive a fair compensation.

It is on these lines that the matter should be considered, and from the standpoint of the consumer rather than the producer, and in no case should there be any hint as to the impossibility of carrying out the present law to the strictest letter.

Marengo, Ill.

Season in Southern California

BY J. E. PLEASANTS.

HONEY-PLANTS are coming into bloom early here this spring. The bees are increasing rapidly and swarming in the valleys. Orange bloom is coming in gradually instead of all at once as is often the case. This is very

American Bee Journal

favorable to the bees in the orange belt, as the flow will thus be prolonged. Alfilaria and other minor early spring nectar-producing plants have been in bloom for some time. Black sage is beginning to come in, in the mountains. We have had a heavy winter rainfall; the principal thing here in order to produce a crop.

Now with favorable spring weather the outlook is good. Bees are in better condition than last year, generally speaking; there is less European foulbrood. The disease mentioned in the January issue of the American Bee Journal, which affected the adult bees, has not appeared in other apiaries, though the one infected has made no improvement, but the bees are dying off.

The Orange County Beekeepers' Club, at its meeting April 8, considered the best methods of buying cans and cases. Mr. George J. Brown, the newly-elected vice-president for California of the United Honey Producers, made a report of the lowest figures quoted him by eastern firms with whom he has been in correspondence, on carload lots of cans and cases.

This is one of the initial movements here for cooperation in the handling of a honey crop. If enough beekeepers join together to make buying in large lots practicable, there ought to be considerable saved in getting the crop cased ready for market. At this meeting also Mr. Brown will begin his campaign of boosting—commencing in his home club. When the proper literature is ready the subject is to be put before the Domestic Science teachers of the California Public Schools.

Orange, Calif.

Strong Colonies for the Harvest

BY OSCAR RITLAND.

THERE are several systems of managing bees in the spring, but if we are going to expect a good surplus they must all come to the same end, and that is, strong colonies for the harvest. This is especially true in producing comb honey, but it is also very important in extracted honey production.

A medium colony will do well when supplied with empty combs, whereas it it will do very little at comb honey. For this reason beekeepers who produce both comb and extracted honey usually divide their colonies into two classes at the eve of the harvest; one of those strong enough for comb honey and the other those not strong enough. These latter are then used for extracted honey. If you are a comb-honey producer don't be satisfied with having most colonies strong, thinking the rest can be used for extracted honey. For if the medium colonies were strong they could still be used for extracted honey, and the amount stored would of course be much more.

The noted beekeepers of today would not have been what they are had they not continually set the mark a little higher. It is the weak colonies that take down the average. Are you sure that you have done everything that you can to help all your colonies to become strong? Are they protected from the prevailing winds? Are there no cracks at the tops of the hives where the heat can escape? Is the entrance contracted? Are all supplied with abundance of stores? Are the combs straight and of worker size cells? Is the cover rain proof? If you cannot say yes to all the above questions, it is up to you to remedy the trouble. Then adopt whatever syste you think is best for you, but don divide your colonies before the harves unless you prefer increase to surplu honey. Let every mistake be a lesso so as not to let the same thing happe again.

Elroy, Wis.

APIARY OF OSCAR RITLAND AT ELROY, WIS.

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Sections Unsealed in Center of Super

I notice in your department in the American Bee Journal for August, 1913, an article entitled, "Ventilation of Sections." In the fourth paragraph you speak of several sections in the center of the super being only partly sealed. Now, in the American Bee Journal for Jan. 31, 1907, I asked Dr. Miller a question regarding the same trouble as you will see by the enclosed clipping.

The year previous to the one I asked Dr. Miller that question, we opened many supers to find all sections entirely finished excepting the center ones. I attributed the trouble to hot weather, as all the colonies were very populous. Can you throw any light on the cause or have you found a remedy?

A. C. GILBERT.

To find unsealed sections in the center of a super while the outside ones are finished is not a thing of frequent occurrence; or if so, it has not been reported. Dr. Miller is inclined to think that he never heard of a case of the kind until he got from you the letter to which he replied in January, 1907, page 95. In that reply he gives three guesses as to what might be the cause: 1, a difference in nectar; 2, objectionable sections; 3, brood in central sections. These were only guesses, as he knew nothing about the matter from experience.

But a very few years later we were surprised to have the same thing occur in our own apiary, and this was mentioned in his department (as you say) on page 262, August, 1913. It was there vaguely suggested that heat might be the cause, and there is very little doubt that you are correct when you say, "I attributed the trouble to hot weather."

As to the remedy. If heat is the cause, then the thing to do is to reduce the heat. That can be done in part by having the hives where there is a free circulation of air, and by keeping them shaded. If the hive be well ventilated at the bottom, there will be less heat at top. More effective is ventilation of the super itself. If shoved far enough forward, a space will be made at the back end so large that there is little danger of too much heat in the super. But, then, when a cool spell comes it will be too cool at the end where the opening is. Making the opening less and more, according to the weather, is a pretty big job. In any case, ventilating a super at the end doesn't seem to be where it is most needed. After studying long over the problem Dr. Miller devised a way that may help out.

In the latest edition of "Fifty Years Among the Bees," page 121, occurs this:

"If we could only have ventilation at the center, where sealing is first done, instead of at the ends where the last sealing is done! Well, why not at the

American Bee Journal

center? In 1912 I tried it, making a ventilation cover. Here is the bill of material for it: 2 pieces 20x4⅝x¼; 2 pieces 4x4⅝x¼; 2 pieces 13⅞x½x½; 2 pieces 7x½x½. At each side will be one of the 20-inch pieces, and between them, one at each end, the 4-inch pieces. These will be nailed upon the 13⅞ pieces, one at each end, and the 7-inch pieces will come at the inside ends of the 4-inch pieces. We now have a cover with a central opening 12x4⅝ inches. This is laid upon the super with the ½-inch-square pieces uppermost, and on this is placed the usual cover. If desired, this ventilation cover can be lightly nailed to the hive-cover, to be removed at the close of the super season. These ventilating covers have not been thoroughly tested, but give promise of being an acquisition."

The foregoing is not as complicated as it sounds, and is worth trying.

Questions on Beekeeping

1. What is the difference between the leather-colored Italian and the nutmeg Italian?

2. I once hived a new swarm on the old stand and moved the old colony away. The next day the bees swarmed again. What was the reason? Does it often happen that way?

[Mrs.] Mary L. Hines.

Holly, Colo.

1. The leather-colored Italian is one which has three bands, not bright yellow, but more nearly approaching the color of what is called fair leather. There is no bee generally known as the nutmeg bee; but it is likely that some one has given that name to his bees, just as you would call a colony of bees the Smith bees, or the Iron City bees, if you had bought them from Mr. Smith, of Iron City.

2. Such a thing happens only too often, and generally because the place is uncomfortably warm for the bees. For the first week after a swarm is hived, it is a good plan to give abundant ventilation, either by raising the hive on blocks or shoving the cover forward so as to leave an opening above. Better than either one is to do both. It is well also, if the hive is not in a shady place to shade it in some way. One way is to put an armful of fresh-cut hay, or something of the kind, on the cover, anchoring it there with something like two or three sticks of stove-wood.

Lady Beekeeper Scores Highest Average in British Columbia

The honey crop reports for 1915 in the Province of British Columbia have been tabulated, and show an average of 23 pounds to the colony; not a bad record for what is asserted by our oldest beekeepers to be the poorest season in 30 years, this being the beekeeping life of our oldest, and, I believe, the best beekeeper in the Province. The highest average is 83 pounds from 14 colonies, and is reported by Miss Violet Ruddick.

Miss Ruddick was born and reared on the ranch. When the district inspector visited the ranch in 1911, he found about a dozen colonies in a rather derelict condition, and he induced Miss Ruddick, then about 20 years of age, to undertake the responsibility of them, giving her a very little instruction as a starter. For a year or two she made but little headway, but in 1914 she raised 919 pounds from 14 colonies. That was rather a good season, when almost everybody got a crop, so she deserves all the more credit when she increased the yield in a very poor season to 1169 pounds from the same number of colonies.

To show the effect of systematic instruction the following figures tell the story: Estimated crop of British Columbia in 1910, 20 tons; reported crop of 1913, 50 tons; crop of 1914, 150 tons; crop of 1915, 100 tons.

Victoria, B. C. F. Dundas Todd.

One cannot help wishing Mr. Todd had told us a little as to why this lady beekeeper should have out-distanced her competitors of the male persuasion.

Being reared on the ranch, it is possible the superior climate accounts for her superior achievements; but a suspicion arises that the instructor may not have been entirely impartial.

At any rate, we are thankful to Mr. Todd for telling us about it.

Cross-Building of Combs

I use full sheets of comb foundation in the brood-frames, yet the bees build across from one frame to another. After they have filled the sheets they are hard for me to get out of the hive. I use the super on top for comb honey.

Wedderburn, Oreg. Etta Moore.

If your frames are properly spaced the only way in which the trouble you mention could occur is by the weight of the bees upon the foundation breaking it away from the top-bar because not properly fastened. It would have been better if you had made an examination within a day after the bees were put upon the foundation.

The thing to do now is to cut away any comb fastened to the wrong frame, press it back into its proper place, and then fasten it there by means of strings.

In some cases you will need to use pieces of broken sections, or something of the kind, to make the center of the comb come in the center of the frame.

In three or four days the fastenings may be removed.

Divided Brood-Chamber

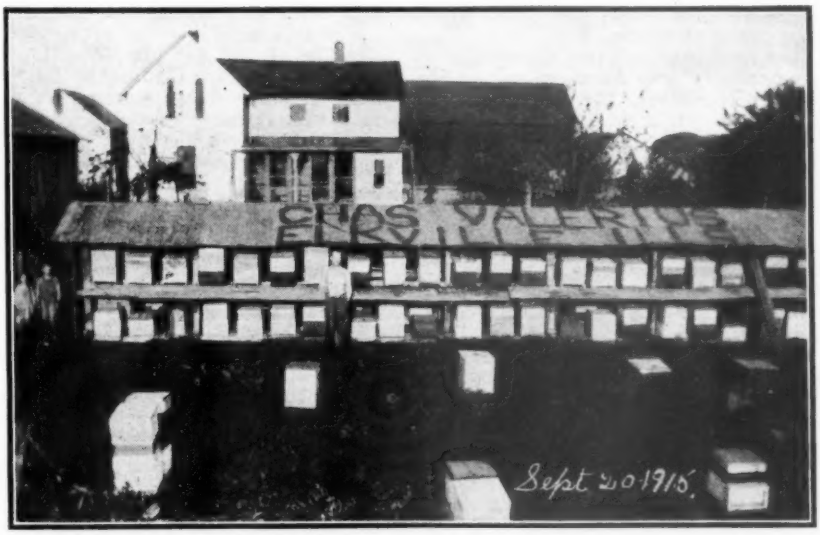
I am enclosing a leaf from a booklet which I have marked. I would like to know when rearing queens by that method, Article 4, what will prevent the bees from building queen-cells in the compartment from which the queen has been transferred?

A Woman Beginner.

The paragraph referred to reads as follows:

4. "A Divided Brood-Chamber.—For this purpose a hive of not less than ten-frame capacity should be used. The bottom-board should be nailed on. Make two tight-fitting zinc division-boards, bound with wood. Let these fit securely on the bottom-board, and come up even with the top of the hive. They must be made to fit so nicely that, when the hive is closed, no bee can find a passage above, below, or around the sides of them. Place them parallel in the middle of the brood-nest in such a manner that the same is divided into three compartments of equal dimensions—one on each side of them and one between. Each of these compartments will be capable of obtaining three frames. The central one is for two frames of unsealed brood and a frame of cells. Always put the cells in the center. The other two compartments are to be occupied by the queen, she being transferred from one to the other as occasion demands, thus keeping the combs well supplied with brood."

When the queen is transferred from one compartment to the other there is nothing to prevent cells from being started except disinclination on the part of the bees. There is free passage through the excluders from one compartment to another. In such cases cells will not usually be *started* although the bees will respect cells given them which are already started.



AN ILLINOIS APIARY

American Bee Journal

MISCELLANEOUS NEWS ITEMS

Isle-of-Wight Disease Still Rampant in England.—My bees are gone with "Isle-of-Wight" disease. I lost them all in 1914, but I had a good colony given me last March; it did not live very long. I finished it off just as it was, honey, brood, and cheese-box in a bonfire. In May I had two stray swarms come to me. The first, a very large swarm, was hived in a Royal Notts hive that had not had bees in for some years. It started well, and in 14 days I put a super of sections on, but the bees never occupied them, and soon showed signs of "Isle of-Wight" disease. The wasps finished them off. The other, a small colony, was put into a hive that was burnt out with a painter's lamp, and had everything new in the interior, but it never strengthened as it ought to have done (the weather was wet). When I went back to pack it up there was plenty of honey, a lot of brood, but only a few bees, so I expect it will go this winter.

There were four other swarms that came to the village, but they are all dead. Where all the bees come from I cannot make out, as we have heard of several other swarms going over, and there are scarcely any bees left in the neighborhood.—JOHN R. TRUSS, Ufford, Stamford, England.—*British Bee Journal*, Jan. 20.

Siberian Beekeeping. — Interesting statistics are translated for us from the Russian Beekeepers' Review, by Mr. P. Schaffhauser, of Havelock, N. C., concerning bees in the province of Sudzenskoye, Government of Tomsk, Western Siberia. There are in that province 1388 apiaries with 42,507 colonies of which 23,675 are movable-frame hives and 18,832 log-hives. The product in 1913 was 99,484 rubles ($51.234). Three different styles of modern hives are in use, the Dadant large hive, the Dalinov and the Root, with crop results very much in favor of the first mentioned.

The proportion of colonies to the population is only 25.4 per 100 inhabitants. Siberia, which most of us have been taught to consider a cold, inhospitable and unproductive country is reported to be able to sustain, in some places, more than ten times the number of colonies now existing there.

Annual Meeting of the Colorado Honey Producers' Association. — The annual meeting of the Colorado Honey Producers' Association was held in Denver Dec. 27-28, 1915.

The demonstraions took place at the warerooms of the association. The most important demonstration was the grading and packing of comb honey, and also the way shipping cases should be nailed up and the edges planed off so that cars of honey can be easily and well loaded.

Samples of comb affected with American and European foulbrood were exhibited by the writer, and a short talk given on the European foulbrood situation. Mr. N. L. Henthorne made a motion that the members be cautioned against bringing in or shipping in bees or queens from localities outside of the State to prevent the spread of bee-diseases.

The motion was carried.

The outdoor wintering of bees was pretty thoroughly thrashed over, and the most of those present thought that, all things considered, wintering on the summer stands is the best for the arid regions. The sense of the meeting was that Dr. E. F. Phillips was too broad in some of his statements in the bulletin on the outdoor wintering of bees.

It was stated by several that chaff hives were very poor for wintering bees, some losing half to all of their colonies so housed.

Some admitted that better wintering might result from packing in outer cases, but the gain would not pay for the expense.

It was brought out by Mr. Herman Rauchfuss that we lose many of our strongest colonies by starvation each year as it is those colonies that store the most surplus honey and breed up the best in the fall that are short of honey in the winter. Mr. Rauchfuss practices placing upon these colonies his weak and queenless colonies that are heavy with honey.

Oliver Foster tried about every method known to beekeepers, and his least loss came when he quit giving protection and requeened his colonies with young queens of his own rearing in July and August. Two different years he wintered an apiary of Caucasians of more than 100 colonies on the summer stands in 8-frame, single-walled hives and flat wood covers without the loss of a single colony. This was at a time when he was operating over 400 colonies, with hired help. These bees were not pampered or given any special attention.

The usefulness of the association to its members was brought out by Mr. Frank Rauchfuss, the manager. He told of the facilities for combining in the purchase of apples, pears, produce, etc. Many members were not availing themselves of the opportunity to secure many articles at wholesale through the association. The association's help in the sale of bees, securing beekeeping labor, transfer of stock and beekeeping exchanges, was discussed, and the feasibility of issuing a monthly sale and exchange list.

The evening of Dec. 27, the association served a supper to the members present, 31 being in attendance. After the supper, the question of honey production in outyards was taken up, and the writer was asked by the president, Mr. George Miller, to begin the discussion. The importance of some plan or system was emphasized. It is impossible to follow in detail one's plans for the reason that no two seasons are alike, but if one can come close to working one outapiary a day, then five or six outyards may be worked each week, with an extra day or two to go on if one gets behind or bad weather intervenes.

Mr. M. W. Harvey, formerly of Montrose, Colo., now of Nevada, follows the plan of having a honey-house at each outyard and storing all supers, sections, etc, at each yard. The plan followed by most beekeepers entails the hauling of supers to the outyards and back each year, as the honey is packed and stored at the home honey house.

On account of the frequency of beekeepers having to move their bees, not very many use honey-houses at the outyards.

Mr. Herman Rauchfuss pointed out that no plan one could make in advance will work in practice. Weather conditions are too disturbing.

The morning session, Tuesday, Dec. 28, was the business session. The president, George Miller, read his address, pointing out the main features of the year's business.

Mr. Frank Rauchfuss gave the secretary and treasurer's report, which imparted the information that the financial affairs of the association were in a very satisfactory condition.

It was gratifying to learn that the commission required to sell the members' honey was but about 1¼ percent, 3¾ percent being rebated back to the members.

The election of a board of directors resulted as follows: President, George Miller; vice-president, Fred Wick; secretary and manager, Frank Rauchfuss; treasurer, Harry Crawford; directors, Herman Rauchfuss, A. Elliott, Fred Stone.

The afternoon session was probably the most important. A committee was appointed to secure legislation on the matter of stealing honey and molesting apiaries. This Legislative and Protective Committee consists of Herman Rauchfuss, Wesley Foster, B. F. Hastings. A fund of $18 was contributed by members, and this is just a starter, as the committee plans assessing all members who comply with the provisions up to 5 cents a colony to create a fund sufficient to prosecute cases of tampering with bees and stealing honey.

The members voted to accept the invitation of Mr. and Mrs. Wm. Lindenmeier, Jr., of Fort Collins, to hold the next summer field meeting at their park—Lindenmeier Lake. This is a beautiful spot on the edge of Fort Collins, and is reached by good roads from all points in northern Colorado.

Boulder, Colo. WESLEY FOSTER.

Queen-Rearing at Wisconsin Agricultural College.—A very interesting paper read at the Wisconsin meeting last winter was the report on the rearing of queens at the college, which was in charge of Mr. C. W. Aeppler.

The proposition of furnishing queens to beekeepers for 50 cents each was tried for the first time last season. There were handicaps which kept the venture from being the great success it might have been. Two of these were lack of funds and supplies to work with, and bad weather conditions during the mating season. In spite of

American Bee Journal

these, however, quite a number of beekeepers were furnished with queens. It is interesting to note that all bee-keepers getting such queens were unanimous in their praise. The fact that there was no limit placed on the number of queens to each beekeeper prevented a wider distribution.

This year it is proposed to get more nearly equipped, and to furnish not less than 500 queens to the beekeepers of the State with a limit of six to each individual.

Wisconsin and Minnesota are the first two States to undertake the rearing of queens in this manner. The benefits to be derived from selection of stock and requeening from well and carefully bred colonies is not to be estimated lightly.

Foulbrood Insurance in Switzerland.—We are in receipt of the annual report of the Union of Swiss Beekeepers for Foulbrood Insurance. As previously stated in these columns, the membership of this association is 9224, with a total number of colonies of 118,810.

In 1915, 47 apiaries were found infected, and the total number of colonies with the disease was 113. Of these 38 were brushed to new combs while the other 75 were totally destroyed and the combs either burned or melted up and the interior of the hives scorched.

HOW THE INSURANCE WORKS.

The report does not show whether there was a different rate of payment when a colony was shaken and when it was destroyed. The total amount of insurance paid, however, was about $320, or an average of $2.50 for each diseased colony. The premium paid by members was one cent a colony or a total for the year of $1189, leaving a balance for the year of $791 after paying all expenses. This added to their previous balance makes a total available in the treasury of the association of $2257.

The aim of the association is to reduce the insurance rates each year and still keep ahead of losses from foulbrood.

Under the leadership of Prof. Leunenberger, this association is getting good results. There are still a number of beekeepers outside the association, but its advantages are so evident that the number of members is increasing rapidly. The percentage of disease is also becoming markedly smaller.

The question now is to apply the principle on which this association is run to conditions in this country. Reference to the foulbrood reports of the different States shows that the percentage of disease is much greater than in that country. However, it would not be necessary to pay quite such a high damage for each colony, and we feel sure that it would be possible to get a large membership at a higher premium rate, say 3 to 5 cents a colony.

Naturally such an organization should be carried out in cooperation with the State inspectors. It ought not to be extremely hard to get a nucleus of beekeepers to try such a plan. As percentages, etc., were worked out the membership could be increased until it became national in character.

The Washington Meeting.—The 22d annual convention of the Washington State Beekeepers' Association was held at North Yakima, Wash., on Feb. 9 and 10. The weather conditions were unusually bad, and the attendance was not as large as expected; but those who braved the elements were well repaid, for the program was an excellent one.

There were papers and addresses by some of the best known beekeepers of the State on subjects of interest to beekeepers, one by Mr. Sauter, of College Place, on queen-rearing being particularly interesting. Mr. Sauter is the only large commercial queen-breeder in the State.

There was a paper by Prof. Wilson, Entomologist of the University of Wisconsin, on "Better Queens, Better Bees; Better Bees, Less Disease."

Prof. Thornber, of the Washington State College, told of the college extension work.

On the evening of the 9th, Prof. Melander, Entomologist of the State College, gave an illustrated lecture on "Ants, Bees and Wasps," which was a revelation to many of those present.

Anson S. White, the only surviving one of the charter members of the association, read an interesting paper on the original membership and the early days.

The members were so well pleased in buying containers in carload lots in 1915, that they decided to order the same way this year, and may add some other articles to the list.

During the year four members have passed away, viz.: L. R. Freeman, a charter member and the first secretary of the association, D. B. Greenwalt, at one time president, J. D. McIntosh and Mrs. Pressy, all well and favorably known.

Ten new members were added during the year.

A committee was appointed to draft a foulbrood law, and also one to arrange for purchase of containers for the coming season's product.

The officers elected for the ensuing year were: President, J. B. Ramage, of North Yakima; vice-presidents, C. W. Higgins, of Wapato, E. Sauter, of College Place, W. H. Tucker, of Prosser, J. J. Peters, of Arlington; secretary, H. T. Skinner, of North Yakima; treasurer, Gus. Sipp, of Selah.

H. T. Skinner, *Sec.*

Western Washington Meeting.—The first meeting of the Western Washington beekeepers was held at Chehalis Jan. 21 and 22. There were bee-men from all parts of the State present. The following program, which proved very interesting, was rendered:

Address of Welcome—Judge A. E. Rice, of Chehalis.

Up-to-Date Apiary—W. L. Cox, of Porter.

Value of Bees in Fruit Growing—W. E. Rambo, Chehalis.

Paper, Securing State Aid—C. P. Dadant, Hamilton, Ill.

Producing Extracted Honey—N. P. Nelson, Centralia.

Short Cuts in American Foulbrood—J. B. Espy, Chehalis.

Experience with Apis Dorsata in India, the Biggest Honeybee in the World—W. E. Rambo, Chehalis.

Bee Diseases, Particularly *Nosema Apis*—Prof. Trevor Kinkaid, University of Washington, Seattle.

Interesting discussions followed each speaker.

An organization to be known as the Western Washington Beekeepers' Association was launched. J. B. Espy, of Chehalis, was elected president, and W. L. Cox, of Porter, secretary-treasurer. Messrs. Espy, Kinkaid and Cox were chosen as a Legislative Committee; the Legislative Committee is to meet with the State Association and a joint committee to draft necessary bee laws.

There was also a strong resolution by State Senator J. E. Leonard, adopted to be presented to the legislature.

The Colorado grading rules were adopted. The meeting was a very enthusiastic one, and we expect good results to follow. W. L. Cox, *Sec.*

The Farm Manual Series.—Through the courtesy of the Lippincott Company of Philadelphia, we are in receipt of the last farm manual series. The names of these are: "Productive Swine Husbandry," "Productive Feeding of Farm Animals," "Productive Farm Crops," "Productive Horse Husbandry," and "Common Diseases of Farm Ani-

APIARY OF F KITTINGER, OF FRANKSVILLE, WIS.

American Bee Journal

mals." The complete series make a fine addition to any library. Prices of any of these books is $1.50, and they may be obtained direct from the publishers or from this office if desired.

Shakespeare Quotation.—In our number for June, 1913, we gave seven quotations of Shakespeare, mentioning "hives," and thought we had given them all. But here comes the British Bee Journal with another:

"He is not worthy of the honeycomb
That shuns the hive because the bees have stings."

Can any of our Shakespeare students tell where this is to be found?

Massachusetts Society of Beekeepers.—The 5th of the six regular meetings of the year 1915–16 was held in the Williams Room in the Ford Building, Boston, Mass., Saturday evening, March 18.

Miss Dorothy Q. Wright, of Lowell, Mass., (one of our own members) was the speaker. Being a practical beekeeper, she was very interesting and held the attention of the large gathering for about two hours. She had a display at an exhibition in Lowell recently. There were miniature hives in an apple orchard, dolls with hoods of net tending them. The trees were made of bayberry shrubs with the berries painted red. Above was a sign, "An Apiary," and a large number of visitors stepped up to ask her what sort of animal an apiary was. She believes that all beekeepers should rear their own queens, as queens by mail are more or less injured.

Arthur C. Miller, of Providence, R. I., was also present.

HENRY W. BRITTON.

DR. MILLER'S ANSWERS

Send Questions either to the office of the American Bee Journal or direct to DR. C. C. MILLER, MARENGO, ILL.
He does NOT answer bee-keeping questions by mail.

Starting to Keep Bees

I am anxious to try to keep a few bees. It is a calling that always appealed to me, but always having lived in such cities as London, Paris and New York, where there was no space at my disposal, I never tried it. But I consider that I have an ideal spot here in Wisconsin. I would like to start with two hives, and gain knowledge by looking carefully after these. Could I buy the hives, frames, bees, etc., from a dealer already with instructions how to set them up?

In reading the Bee Journal I see that a great deal of mention is made of queens. Is it necessary to change the queen yearly or oftener? I would like a few hints that might help a beginner, and will write to let you know later what has been my luck or otherwise. MENASHA.

ANSWER.—The first thing I would advise is that you get a good book of instruction on beekeeping, such as Dadant's-Langstroth, if you do not already have such a book.

You will have no difficulty in buying all the things you need, but I am not sure that dealers send out printed instructions for putting together hives, etc. Generally, however, those who buy supplies in the flat have on hand hives, etc., that are already put together, and by looking at these they have no trouble in understanding what is to be done. It might be advisable for you to have at least one hive that is put together.

Some beekeepers have a practice of changing their queens when a year or two years old, but probably the larger part do not. In my own practice I never replace a queen merely because she is old, leaving it to the bees to supersede her themselves. So my queens are left to die a natural death, unless I find one that is not a good queen and then her head comes off as soon as I can replace her with a better.

The hints that you want you will get from the bee-book, better than I can give you by filling many pages. You will, however, find things that are not fully clear to you in the book, and then this department is at your fullest service to help you out. By all means let us hear of your experience.

Starting a Colony—Introducing a Queen

1. Can I make a new colony of bees with 2 frames of bees and a queen, and how early in spring?

2. How long will I have to leave them shut up with the queen before they get acquainted in the hive? SUBSCRIBER.

ANSWERS.—1. Yes, 2 frames well filled with brood and well covered with bees ought to make a good colony before winter. If you mean how early it will be wise to begin, all things considered, it will not be wise to begin until colonies are so strong that they can spare the 2 frames of brood and still be strong, and that will likely be not such a great while before swarming time. If you mean how early it will be necessary to begin so that there shall still be time for building up, that depends upon the strength of the nucleus with which to begin, and also upon the pasturage and the season. If the 2 frames are hardly half filled with brood, with scarcely enough bees to cover it, in a place where there is no late flow and the season poor, there might be some difficulty about the colony being strong enough for winter, no matter how early the beginning is made. If the frames are well filled with brood abundantly covered with bees, in a place where there is rich pasturage continuing until late in the fall, there might be no need to begin until some time in August, or possibly even the first of September.

2. I suppose you mean how long the bees must be fastened in the hive so they will not return to the hive from which they were taken. If two frames of bees and brood are taken from a colony, and put in an empty hive in the same apiary, many or all of the bees will desert if no precaution is taken. If they are fastened in the hive for three or four days there should be no trouble, and not many bees will return if they are imprisoned two days. There will be less need for fastening the bees in the hive if a double portion of bees be given. The old bees may then return and still leave a good force of the younger bees. If the bees are taken from a queenless colony, they will stay better th if taken from a queenright colony. [If t weather is hot keep them in the cellar du ing the confinement to the hive.—C. P. D.]

Transferring—Hiving Swarms

1. My bees are in 8-frame hives and I wis to put them in 10-frame hives. When shall make the change, and where shall I put th two frames of foundation on the sides c between the combs?

2. Will you explain the working for bul comb honey.

3. In hiving a swarm should I hive them o the old stand in a new hive or give them new location?

4. In hiving a swarm on the old stand, hav ing no flow on at the time, should I use start ers or full sheets of foundation?

5. What size of foundation would you recommend to use in shallow frames 3⅜ inches deep of bulk comb honey?

6. Will light brood foundation do as well as medium when wired?

7. In buying bees in pound packages how many frames of foundation should be given them at the time? OHIO.

ANSWERS.—1. You can do it any time when it is warm enough so bees fly freely. Put the frames of foundation at one side.

2. Cut the combs of sealed honey out of the frames, divide it into pieces small enough to go into the container, and after filling the container with these combs pou in all the extracted honey you can.

3. If you don't want the colony to swarm again, hive the swarm on the old stand; if you want an afterswarm, hive the swarm on a new stand.

4. Better use full sheets at all times unless you want a good deal of drone-comb.

5. Thin super.

6. Yes, if it has a little closer wiring.

7. You may give just what the bees will cover, or you may give any number more up to the full capacity of the hive.

Comb or Extracted Honey?—Mixing of Races of Bees

1. Would you advise a beginner to start in with extracted or comb honey?

2. Will a queen mate in the air with a drone from other colonies? If they do it would it be hard to keep pure-bred bees? Mine are getting black; they mixed with my neighbor's bees, as one of them kept black bees. MICHIGAN.

ANSWERS.—1. That's a difficult question, the matter depending so much on your market, your bee-forage, and other things, so that no one can decide the question so well as yourself. For a beginner it is easier to run for extracted, and you get more of it, probably a half more, and some good authorities say even double. If you have light-colored honey, and can sell sections for twice as much as extracted, or even possibly a half more, then comb honey may be the thing for you; if you are in a location where extracted will sell for nearly as much as comb, then by all means extract.

2. You thought exactly right; they do mix at a distance of two miles, more or less, and it's not an easy thing to prevent such mixing.

Hiving a Swarm

Last August a swarm of bees took possession of the piazza, going through a knot-hole under the clapboards. Would it be possible to get them into a hive? NEW JERSEY.

ANSWER.—Leave them until the fruit trees are in bloom. Then cut away one or more of the boards so as to expose the bees and combs, using enough smoke to keep the bees subdued. Set a hive close by, cut out the combs, fastening at least some of them in the frames and put them in the hive, brush and smoke the bees out of captivity, close up the boards and the knot-hole, keep-

American Bee Journal

in up such a dense smoke that all the bees will be kept out The bees may fly about the place for a time, but will finally conclude to make the best of it and settle in the hive, and may then be taken away.

Entrances Too Small

I had three swarms in factory-made hives, and the rest are in old boxes. I lost two of those in the good hives, and the third one lost half of its bees. What would cause it? Could the hives have been too tight? I found dead bees piled inside the entrances. The opening was ¾x1 inch on the one that was partly dead, and I opened it to ⅜x12 inch, and they have cleaned the dead bees out and seem to be all right now. The rest of my bees in the old boxes are doing fine. What was the trouble? IOWA.

ANSWER.—A bee can barely crawl through a space one-sixteenth of an inch deep. You left them a space of ¼ inch through which they could readily pass, yet so shallow that it was easily clogged with dead bees, and then the bees could not get out at all. It was pretty warm, the excitement of the bees made it warmer, and the bees smothered.

Temperature for Opening Hives in Spring

1. What should the temperature be to open a hive safely in spring?
2. How much space should be left between the tops of the brood-frames and the cover of a hive? SUBSCRIBER.

ANSWERS.—1. If you go by the thermometer, perhaps it may be said that it should not be less than 70 degrees. But something depends upon what you are doing, and also the weather. If you merely glance into a hive to see whether stores are lacking, or even take out a frame to see whether there is any brood in the hive, there will be no great risk at 50, provided it is still and the sun is shining. But if there is a fierce raw wind, there may be danger at anything less than 70. A pretty safe way is to let the bees decide the question for you; do not open the hive at a time when bees are not flying freely.

2. About a quarter of an inch.

Wintering—Best Hive for Comb Honey

1. Which do you consider the best, cellar or outdoor wintering?
2. Which is the best hive for comb honey the dovetailed or Danzenbaker? MICHIGAN.

ANSWERS.—1. South of somewhere about 40 degrees north latitude it is better to winter outdoors. North of that cellaring is generally considered better, although some winter successfully outdoors as far north as in Canada

2. I think the great majority prefer the dovetailed.

Starting a Colony—Rearing Queens

1. Is it better to start a new colony with nuclei or bees by the pound, and when should they be placed in the hive?
2. Can you start a colony by putting a lone queen in the hive?
3. When a small colony is placed in a hive with a queen is it likely to swarm out and go away?
4. When a colony sends off a swarm, will they rear and provide a queen for this same colony that swarms off?
5. Will a full colony rear more than one queen for a new colony; if so, can you save these?
6. Can you rear queen-cells, or what are some of the best methods for queen-rearing? MISSOURI

ANSWERS.—1. That depends. If you have plenty of strong colonies and are not anxious for very rapid increase, then it will probably be better not to send away, but if you have very few bees and are anxious to increase rapidly, it will be advantageous to get bees by the pound. In either case it is hardly well to begin before honey is yielding pretty freely.

2. No.

3. No; but it may sometimes happen.

4. No normal swarm ever issues unless there is already present a queen to go with the swarm.

5. When a colony swarms there are always a number of queen-cells in the hive, and you can save the surplus ones

6. Yes, you can make queen-cells, at least the queen-cell cups, and can get the bees to use them. To go into a discussion of methods of queen-rearing would be going beyond the scope of this department. You will find that in the books, and there is a whole book devoted to queen-rearing by that master in queen-rearing, G. M. Doolittle.

Laying-Workers

In queenless colonies that have fertile workers, how would it be to brush the bees all off the combs into the hive, then carry the hive and bees off, say 100 feet, dump the bees out, then put the hive on the old stand. In that way I think the layers could not fly back to the hive. If this would not be satisfactory would it be wise to unite them to a weaker colony? PENNSYLVANIA.

ANSWER.—Taking laying workers a distance from the hive, hoping they would never return, has been advised sometimes, but I am afraid you wouldn't find it satisfactory. You will probably find that a large proportion of the bees are at the foolish business of laying eggs, and that they will find their way back as well as other workers. Uniting with a weaker colony is good, One way is to lay a newspaper over the colony of laying workers, and then set the weak colony on top.

Non-Swarming Plan

1. I have no drawn comb, and run for section honey only. Could I work this plan by placing a hive-body on top of the swarm and raise a well filled frame of brood up to the hive-body, then fill that with frames of full sheets of foundation, and as the brood hatches drop that and raise another so as to keep brood always above?
2. When the honey flow begins and I place the sections on will the bees work in the sections as well as otherwise? PENNSYLVANIA.

ANSWERS.—1. I don't see any reason why frames filled with foundation should not work as well as drawn combs, and the plan you propose seems to fulfill the conditions, which are to have unhatched brood constantly in the top super and space below in the hive proper.

2. No, so long as there are drawn combs above, the bees will show at least a little preference for them.

If you try the plan please be sure to report how it works for you.

Weak Swarms

1. Last spring I bought four colonies of bees, three of them swarmed. The one that didn't swarm made 125 pounds of comb honey. Can you tell why it didn't swarm?
2. I hived a little third swarm of bees. The swarm did fine for about a week, and then I found there wasn't more than 200 bees left in the hive. Can you tell where the bees went? The swarm had brood, but it was unsealed. A few weeks after I took two frames of brood and honey from another colony and gave them this swarm. The brood hatched out, but the bees died off. Was the colony queenless?
3. Can I use this hive for another swarm next year? Quite a few cells have dead bees, and a few have sealed brood that did not hatch.
4. I am planning on cutting out drone-cells this spring. How does a person fasten the foundation in, especially if there is a little piece of drone-comb in the middle of the frame surrounded by worker-comb?
5. If I cut out drone-cells will the bees rear drones in the supers unless I use excluders? Do excluders hinder the bees?
6. I had a small swarm that came out late, and I gave it three frames of sealed honey. Will that swarm amount to anything in the spring and will it likely swarm out?
7. I read that bees that are in hives in the fall live until spring What causes lots of them to die off during the winter?
8. I noticed quite a few dead bees over back of the hives and near the door, how do they get over there? My cellar is perfectly dark.
9. Before I put a super on a colony that didn't swarm, the hive was full of honey, but when I took off the honey in the fall there wasn't five pounds of honey left in the hive. Can you tell where the honey went? MINNESOTA.

ANSWERS.—1. When a colony good enough to store 125 pounds of honey does not swarm while other colonies do, the likelihood is that it is simply because the strain is so good that the bees bend all their energies to storing without wasting time swarming; in other words, the bees don't swarm because they are too good to swarm. That may not be very much of an answer, but it fits the case as well as any other answer I happen to have on hand at present.

2. I don't know. The queen may have been at fault, but the fact that brood was in the hive looks a little as if the bees may have been starved into swarming out, and so there would be a hunger swarm. The bees were not queenless in the first place, for they had brood within a week after being hived.

3. It will be all right to use the hive for a swarm again, in spite of the dead bees and brood, provided there was no disease in the hive.

4. After cutting out the drone-comb, cut away the cells on one side down to the septum or middle wall, to the extent of quarter of an inch or more all around the hole. In a warm place, with the foundation so warm that it is pretty soft, press down the edge of the foundation upon the bared septum and the bees will do the rest.

5. Yes, unless the super is filled with worker foundation so the bees have no chance to build drone comb in it. Excluders do not hinder the bees much.

6 It is likely that it will be dead in the spring or before that, yet possible that it may live through, make a good colony and send out a swarm.

7. The bees in the hive in the fall don't by any means all live until spring. The older ones die of old age all through the winter.

8. Bees about to die come out of the hive and crawl away, so you may find dead bees on any part of the cellar bottom.

9. During the summer the honey was taken out of the cells (eaten or moved into the super) to make room for the brood, the combs being well filled with brood. Then when brood-rearing ceased there wasn't enough honey gathered to fill up the combs again.

Two Swarms No Queen—Where Return

When two swarms issue and unite, and both queens are taken away, why will not these bees separate and return to their respective original hives? CUBA.

ANSWER.—I don't know, but I can make something of a guess. When a lot of bees issue as a swarm, they have made up their minds they don't want to stay in the old home any longer. If their queen was taken away, or, being clipped, fails to go with the swarm, the bees may return to the old home, but in a more or less sulky humor. If there is extra excitement at some other hive, they are very likely to go to that hive, thinking it a good place for a lot of bees to

American Bee Journal

go that want to get away from their old home. Please understand that these bees which were formerly so attached to their home that they would have willingly sacrificed their lives in its defense have undergone an entire change of heart. Instead of pining for home, they would as soon, or rather, go somewhere else. So if A and B swarm at the same time and cluster together and then find there is no queen with them the bees of A may make a start to return to their own home, and the call at the entrance is due to notice to the bees of B that there's a place where they will be kindly received, and they go there in preference to going to their own home. Suppose, however, that a quarter of an hour before A and B swarmed C had swarmed and were returning to their own hive at the time A and B issued. It is quite likely that A and B, hearing the call at the entrance of C would go there in prefer ence to going to A,

Whether my interpretation of the feelings of the bees be correct or not, you may rely upon it that the actions of the bees are as stated, for I have observed it many and many a time.

Weak Colony—Best States for Honey Yielding

1. In examining my bees this spring I found one of them had perished during the winter, although they had plenty of honey and ventilation throughout the winter.

2. What State in the Union is the best honey yielder? PENNSYLVANIA.

ANSWERS.—1. Likely the colony was weak, and was caught clustered away from the main stores in a cold spell so long that all the stores within reach were consumed and then the colony starved with plenty of stores in the hive but out of reach.

2. Rather hard to say. California and Texas claim preeminence.

Putting Starters in Super—Mixing of Bees

1. Last season I put a super on a late colony of bees, but they did not make honey in it. During the winter they removed all the starters from the section. Must I refill them this spring?

2. I have a hive of pure Italians in an apiary with black bees. Will the swarms which come from it be pure Italians? SUBSCRIBER.

ANSWERS.—1. It will be necessary for you to refill the sections from which the bees have torn the starters. These supers should have been taken off just as soon as the honey flow was over last summer or fall,

2. When the swarm issues it is likely that the old queen will go with it, and therefore the swarm will be headed by an Italian queen and will be also pure Italian. The parent colony will rear a new queen which is pretty apt to be a cross between Italian and blacks.

Late Swarms

1. I had three swarms last season that came after Aug. 8. Knowing that it was too late for them to make enough to winter on, I put each one in hive-bodies that had been extracted and partly filled again Apparently the swarms went tarough the winter all right; but a few days ago I discovered one of them was not flying out much, and on examining found but a small handful of bees. They had 20 or 25 pounds of nice honey and no eggs nor young bees, but I found some dead brood, there was no odor about the combs; they had no queen. What do you think was the matter? Do you think it was foulbrood?

2. If it was not foulbrood would it do to save the combs and honey and give them to other swarms?

3. How can you tell when there is foulbrood?

4. I have three other hive-bodies on top with nice combs with honey in. Would it be advisable to save them and give them to other swarms when they came? TEXAS.

ANSWERS.—1. You say there was no queen. That is enough to account for the whole trouble. There was some dead brood that was near to emerging, and that may have been there a long time, probably outside the brood-nest, where it had chilled to death. From what you say there was no indication of foulbrood.

2. Yes.

3. In American foulbrood you are likely to find here and there a hole in the center of the capping over a brood-cell; and if you stick a tooth-pick into the dead larva it will string out as you withdraw the pick; and there is also a very foul odor. In European you will find larvæ not yet large enough to be sealed that have quite a yellowish color.

4. Yes, if there is no disease present.

Classified Department

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

BEES AND QUEENS.

FINEST Italian Queens. Send for booklet. Jay Smith, 1150 DeWolfe St., Vincennes, Ind.

PHELPS' Golden Italian Queens will please you.

MORE BEES than I have room for. Will sell 50 colonies. E. L. McDowell, McGregor, Ia.

TWENTY-FIVE colonies of bees for sale. G. W. Lindle, Muscatine, Iowa.

FOR SALE cheap 45 colonies of bees, extractor and other supplies. Write, Mary Vernon, Carlyle, Ill.

FINE three-banded Italian queens. Circular and price list free. J. L. Leath, Corinth, Miss.

TELL several thousand people what you have for sale with a few words in this department.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook,
1Atf 70 Cortland St., New York City.

NORTHERN BRED ITALIANS, "Nutmeg" strain. Circular. A. W. Yates,
3 Chapman St., Hartford, Conn.

PHELPS' Golden Italian Bees are hustlers

QUEENS FROM THE PENN CO. See our large ad. elsewhere in this Journal.

ITALIAN QUEENS that produce hustlers. Nuclei and pound packages.
A. E. Crandall & Son, Berlin, Conn.

ITALIAN BEES for sale in 8-frame hives, $5.00 per colony. Satisfaction guaranteed. L. Boomhomer, Freehold, Greene Co., N. Y.

DOOLITTLE & CLARK'S Italian breeding queens will be ready for delivery May 1. Prices, $10, $5.00, and $2.50. Marietta, N Y.

READY now 1-lb. 3-band Italian bees with queen, $1.65. 2-fr. nuclei with queen, $2.25. Rosedale Apiaries. J. B. Marshall, Big Bend, La.

BEE-KEEPER, let us send our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg. Co.,
4Atf Greenville, Tex.

FINE ITALIAN queens by return mail Island bred. Tested, 6 for $6.00; 12 for $11. Untested, 6 for $5.00; 12 for $9.00.
E. J. Blaine, St. Petersburg, Fla.

VIGOROUS prolific queens, $1.00; 6 $5.00; June 1. My circular gives best methods of introducing. A. V. Small,
2302 Agency Road, St. Joseph, Mo

PLACE your order early to insure prompt service. Tested, $1.25; untested, $1.00. Italians and Goldens. John W. Pharr, Berclair, Tex

IF YOU wish to get early queens and comb-less packages place your orders early with the Marchant Bros., Union Springs, Ala. See our ad elsewhere in this Journal.

INDIANOLA APIARY offers bees and queens for sale. Untested, 75c. Tested, $1.25. Bees in 1-lb. packages, $1.00; 1-frame nucleus, $1.25. Add price of queen if wanted.
J. Warren Sherman. Valdosta, Ga.

QUEENS OF QUALITY—The genuine "quality" kind of dark Italians bred for business. Guaranteed to please or your money back. Circular free. J. I. Banks, Dowelltown, Tenn.

FOR SALE—Bright Italian queens at 75 cts. each; $7.50 per dozen or $60 per 100. Ready April 15. Safe arrival and satisfaction guaranteed. W. W Talley,
Rt. 4, Greenville, Ala.

FOR SALE—Bright Italian queens this season, 75c each; $8.00 per dozen. Safe arrival and satisfaction guaranteed.
T. J. Talley, Rt. 3, Greenville, Ala.

MY BRIGHT Italian queens will be ready to ship after April 1st at 60c each. Send for price list. Safe arrival and satisfaction guaranteed. M. Bates, Rt. 4, Greenville, Ala.

THREE-BANDED ITALIANS ready May and June, $1.00 each; 6 for $5.00; 12 for $9.00; after June, 75c each; 6 for $4.25; 12 for $8.00. For larger lots write Curd Walker, Jellico, Tenn.

QUEENS from my honey-gathering strains will be ready to ship April 1st. In honey-getting qualities they have few equals. See my advertisement elsewhere in this Journal. D. E. Brothers, Attalla, Ala.

GOLDEN ITALIAN QUEENS Select tested, $1.25. Tested, $1.00. Untested, 70C; 12, $8.00. Select untested, 80C; 12, $9.00. Untested, July, 10C off each; $1.00 per doz. off. No foulbrood. D. T. Goster, Rt. 2, Randleman, N. C.

FOR SALE—Forty or 50 colonies of bees with good straight combs built mostly from full sheets of foundation. Bees are nearly all Italian with some hybrids. Write me at once. B. A. Manley, Milo, Iowa.

QUIRIN'S superior northern-bred Italian bees and queens are hardy, and will please you. More than 20 years a breeder. Orders booked now. Free circular. Honeydew for bee food, 5c a lb. H. G. Quirin, Bellevue, O.

FOR SALE—In order to make room for early cells we are offering select tested queens for $1.00 each if taken by April 15th. These are young queens and were reared late last fall. M. C. Berry & Co., Hayneville, Ala.

A LIMITED number of new colonies three-banded Italians in nearly new eight-frame hives, $6.50 each. This includes one super. Strawberry bed, postpaid, $1.00.
Cherry Grove Fruit Farm, Dows, Iowa.

ITALIAN QUEENS, prompt service; queens mailed to purchaser in new style of introducing cage that is safe and sure. Bees from a one-frame nucleus to a carload. Write for price list on colonies, queens and nuclei. J. F. Diemer, Rt. 3, Liberty, Mo.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1.00 each; Tested, $2.00; Breeders, $5.00 and $10.00.
2Atf J. B. Brockwell, Barnetts, Va.

GRAY CAUCASIANS—Early breeders; great honey gatherers; cap beautifully white; great comb builders; very prolific; gentle; hardy; good winterers. Untested, $1.00. Select untested, $1.25. Tested, $1.50. Select tested, $2.00. H. W. Fulmer,
Box 10, Andalusia, Pa.

American Bee Journal

QUEENS, improved three-band Italians bred for business, June 1 to Nov. 15. Untested Queens, 75c each; dozen, $8.00; Select, $1.00 each; dozen, $10. Tested Queens, $1.25; dozen, $12. Safe arrival and satisfaction guaranteed. H. C. Clemons, Boyd, Ky.

LET us send you price list and descriptive circular of our bees and queens, and if you will tell us what sized and how many packages you may want, we will be glad to write you what the express will amount to.
R. V. & M. C. Stearns, Brady, Tex.

AN established strain of honey gathering golden stock. Honey is what you want without much swarming. Book your orders early to save delay. One untested queen, $1.00; 6 for $5.00; 12 for $9.00. Write us what you want. T. S. Hall, Talking Rock, Ga.

CARNIOLAN, golden, and 3-banded Italian queens. Tested, $1.00. Untested, 75c; 6, $4.20; 12, $7.80. ½-lb. bees, 75c; 1-lb. $1.25. Nuclei, per frame, $1.25. No disease; everything guaranteed. Write for prite list.
C. B. Bankston, Buffalo, Leon Co., Tex.

FOR SALE—Good Italian queens, untested, 75c; tested, $1.00; nuclei, 2-frame, $3.00; 1-lb. package, $2.00; 2-lb. package, $3.00. Untested queen with bees at above prices. Will begin to send about April 1st. G. W. Moon,
1904 Park Ave., Little Rock, Ark.

HAVING secured breeders of Dr. Miller we are offering daughters of his famous strain of Italians at the low price of $1.50. each. Queens of our own strain at 75c each. One pound bees, $1.50; 2-frame nuclei, $2.25 Full colony in 8-frame hive at $6.50; 10-frame, $7.50; 200 colonies for spring delivery at $6.00 each, 10-fr. hives. The Stover Apiaries,
Mayhew, Miss.

A DAUGHTER of one of Dr. Miller's best honey queens and the Beekeepers' Review for 1916 for only $2.00. A daughter of one of the best honey getting queens selected from 1100 colonies worked for extracted honey, from the yards of E. D. Townsend & Sons, and the Review for 1916 for only $1.75. The queens will be mailed in June direct from our breeders in the South. A rare buy.

BEES AND QUEENS—Doolittle's Italian stock speaks for itself. They are gentle, resist disease, and are fine honey gatherers. We breed this stock only. Untested queens 75c each; $8.00 per dozen; $60 per hundred. Tested queens, $1.25 each; $12 per dozen; $85 per hundred. Three frame nuclei, $2.25 each; $200 per hundred. Bees ½-lb. pkgs., 75c each; $60 per hundred; 1 lb. pkgs., $1.00 each, $85 per hundred, Add price of queens to above pkgs. Complete catalog free on application Spencer Apiaries Co.,
Nordhoff, Calif.

FOR SALE—36 colonies of bees in 8-frame hives; 50 supers full of frames and drawn comb; 30 brood-frames full of honey; 20 comb-honey supers and a lot of bait combs; 30 queen-excluding honey-boards; 10 Porter bee-escapes; 8 drone-traps; 100 new Hoffman frames not nailed; 100 or more other frames; 1 Cowan honey-extractor; 1 Doolittle wax-extractor; all of last year's wax and cappings Must all go in a lump. Sale here on the farm, 3½ miles from Livermore. At $200. S. C. Boyle, Bode, Iowa.

CARNIOLAN, Golden and Three-Banded Italian queens from April to October. Tested, $1.00 each; 6, $5.40; 12, $10.20. Select tested $1.25 each; 12, $13.80. Untested, 75c each; 6, $4.20; 12, $7.80. Select untested, 85c each; 6, $4.80; 12, $9.00. Breeders, $3.00 to $5.00. Virgins, 50c each; 6, $2.50; 12, $4.00. Bees, 1-lb., $1.25; 2 lbs. $2.25; ½ lb., 75c. Nuclei, 1 frame, $1.25; 2 frames, $2.25; 3 fr., $3.00. Full colonies with tested queens, 8 fr., $6.50; 10 frame, $7.00. No disease, safe delivery and satisfaction guaranteed. Money must accompany the order. Write for price list.
I. N. Bankston, Buffalo. Tex.

FOR SALE—35 colonies pure Italian bees with select tested queens of J. P. Moore strain, $4.50 per colony; 35 colonies with mismated queens from same strain, $4.00 per col.; 35 cols. light colored hybrids from the same strain with queens, $3.50 per col., all in 8-frame bodies in good winter cases, mostly the Quinby standard, full depth self-spacing Hoffman frames, 8 to each hive, all combs straight, and all strong and healthy with plenty of honey, f. o. b. here.
Wilmer Clarke, Box 200, Earlville, Mad. Co. N. Y.

PHELPS' Golden Italian Queens combine the qualities you want. They are great honey gatherers, beautiful and gentle. Mated, $1.00; six, $5.00; Tested, $3.00; Breeders, $5,00 and $10. C. W. Phelps & Son,
3 Wilcox St., Binghamton, N. Y.

GOLDEN ITALIAN QUEENS by June 1st. Untested, 75c or $4.00 per half doz.; $8.00 doz. Select untested, $1.00. Tested, $1.25 each or $7.00 per half doz.; $12 a doz. Breeders, $3.00 to $5.00 each. Purely mated guaranteed. Send for circular. J. I. Danielson,
Rt. No. 7, Fairfield, Iowa.

SITUATIONS.

WANTED—Position in apiary by man of some experience. Please apply to
Edw. C. Towne, Elroy, Wis.

WANTED—Young man who has had good experience in taking care of bees, to assist in apiary of 150 colonies. Must have best of references as to character and otherwise. Address, Mrs. Robt. Elliston, Princeton, Ill.

HONEY AND BEESWAX

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co.,
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COMB HONEY our specialty. Highest market prices obtained; prompt returns made. Send us your shipments.
Albert Hurt & Co., New Orleans, La.

NEW CROP of rich, white mesquite and catclaw honey. Bulk comb and extracted. Comb in two 60-lb. cans, 11c; in 6-10 lbs., 11½c; in 12-5 lbs., 12c. Extracted, 2c per pound less. C. S. Engle, Beeville, Tex.

FOR SALE—Extra good light amber mesquite and alfalfa honey. Two 60-pound cans to case, 5c a pound; 5 and 10 pound friction-top pails, 8c per pound per hundred weight. Cash with order on board of cars here.
B. A. Hadsell, Buckeye, Ariz.

FOR SALE—Water-white alfalfa, white clover, amber alfalfa, and amber fall honey in 60-lb. cans or smaller packages. Amber fall honey is of our own extracting, and can also be furnished in barrels. Write for sample of kind desired and state quantity you can use. Dadant & Sons, Hamilton, Ill.

FOR SALE

FOR SALE or to let on shares 250 well kept colonies, in irrigated alfalfa region (Kansas); season 1914 averaged 110 pounds. Address, C. O. Davison, Presby. Hosp., Pittsburg, Pa.

FOR SALE—Friction-top pails, 5-lb. size, per 100, $4.50; 500, $21.25; 10-lb. size per 100, $6.25; 500, $30. Low prices on other sizes in bulk. Also furnished in re-shipping cases. Shipped from Chicago.
A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE—150 Alexander feeders, 12c each, used one season. $16 cider mill, $8.00. 800 wire moving screens, strong frame, 600-8 fr., 4c; 200-10 fr., 5c. 4-90 gal. honey tanks, used one season, $6.00 each. 4 fr. Root automatic reversible extractor, $12.50. New $70 Reflex camera, $55. An Eastman 4x5, 18 in. bellows, cost $32, $15. 100 8-fr. hive bodies, painted, frames wired, 50c each. 200 new zinc queen excluders, 20c each. Empty 60-lb. cans, 2 in a case, 40c each. Will sell for cash or will trade for honey, or bees in two-pound packages Wesley Foster, Boulder, Colo

FOR SALE—Two-frame Cowan reversible extractor, used one season, $8.00. 40 4x5x1⅜ plain section supers, complete with fences, holders and springs, used one season, Root's make, $10. Ed Swenson,
Spring Valley, Minn.

FOR SALE—Ames' hulling and scarifying machine for sweet clover seed; used but two weeks; delivered to you $5.55. Indian motor cycle, $60. Deering mower, excellent condition, $15. 400 potato sacks, 3c each. 30 seamless bags (new) 20c each. Will trade for honey. Wesley Foster, Boulder, Colo.

FOR SALE—200 colonies of bees, 5 acres of land. N. L. Anderson, Spearfish, S. Dak.

BEE LOCATION FOR SALE, including spring water business, 100 colonies of bees and all fixtures with residence and 1 or 2 acres of land; situated one mile northwest from city of Sheboygan, Wis. If interested act quick. Address, Crystal Spring Water Co.,
R. R. No. 3, Sheboygan, Wis.

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HONEY LABELS that create a favorable impression on the buyer. Dealers admire them and give them prominence. Catalog Free. Liberty Pub. Co., Sta. D, Box 4H. Cleveland, O.

SUPPLIES.

TEN-FRAME Supers nailed up, only 30c each, All new. W. D. Soper, Jackson, Mich.

GOOD second hand 60-pound cans, 25c per case of two cans f. o b. Cincinnati; terms cash. C. H. W. Weber & Co., Cincinnati, O.

BEEKEEPERS' SUPPLIES sold at a reduction. New prices now ready, Send for list free.
W. D. Soper, Jackson, Mich.

DO YOU want the best foundation fastener? Then buy "The Pangburn," price $1.75, postpaid, mfg. by W. S. Pangburn,
Center Junction, Iowa.

FOR SALE—Cedar or pine dovetailed hives, also full line of supplies including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside. Wash.

FOR SALE—Good second-hand pound cans, 25c per case of two cans. f. o. b. Chicago. Cash with order. E. H. Bruner,
3836 North Kostner Ave., Chicago, Ill.

70 T TIN supers for 10-frame hives with inside fixtures; also 240 fences and 280 section holders for 4¼x4¼x1⅛ plain boxes. Bargain if sold at once. G. L. Allen,
R. D. No. 2, Ulster, Penn.

NOTICE—Beekeepers when in need of supplies write us for prices We can save you money. We make a specialty of odd sized hives. The M. C. Silsbee Co.,
Cohocton, Rt. 3, N. Y.

FOR SALE—Medium brood foundation, one to ten lbs., 52c per lb. Up to 25 lbs., 50c. Up to 50 lbs., 48c; 100 lbs., 48c, prepaid in Louisiana. Root's goods for sale. Beeswax wanted, 26c cash, 27c in trade.
J. F. Archdekin, Bordlonville, La.

SECTIONS $2.85 per thousand. The Beekeepers' Review is making a lead on sections and furnishing their subscribers with *any make you prefer* at from $2.85 to $4 50 per M. Order the same make of section as usual, but do not send us but $4.50 per M. for the No. 1 grade and 50c less tor the No. 2 grade. One make can be furnished as low as $2.85 per M. for the No. 2 plain. *Do not buy a single supply* for the bees without first investigating our cooperative plan of buying. Write your wants to the Beekeepers' Review, Northstar, Mich.

MISCELLANEOUS

DEER HEADS nicely mounted. Will trade for bees. O. G. Mills, Bayfield, Wis.

FOR SALE—California little suburban farms, suitable for poultry, fruit and garden. Terms, write E. R. Waite,
Shawnee, Okla.

FOR SALE—A fine farm in Florida, 10 or 20 acres, 2 acre orange grove, also apiary. Fifteen minutes walk from railroad depot. Write for particulars. Chas. Mack,
Mannville, Putnam Co., Fla.

FOR SALE—A good bee location; 40 acres with good house and barn; also 30 colonies of bees with fixtures. Located in the central part of Wisconsin. For further information write to Geo. Delano,
Royalton, Waupaca Co., Wis.

American Bee Journal

UARANTEED purely mated three-banded Italian queens ready in May. Price; Select untested $1.00 each; 6 for $5.00. Select tested, $1 75 each. J. M. Gingerich, Kalona, Iowa.

FREE FOR SIX MONTHS—MY SPECIAL offer to introduce my magazine, "INVESTING FOR PROFIT." It is worth $10 a copy to any one who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how any one, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how $100 grows to $2200. Write NOW and I'll send it six months free. H. L. Barber, 546-20 W. Jackson Blvd., Chicago, Ill.

POULTRY

IF YOU breed fancy poultry, offer your surplus stock or eggs for sale in our classified columns.

155 EGG INCUBATOR, half price. Exchange for honey extractor, Winchester shotgun or offers. Lorenzo Clark, Winona, Minn.

RHODE ISLAND REDS—Both Combs. High grade; carefully bred; none better. Prices reasonable. Stock and eggs, by setting or hundred lots. Mating list free.
Fred Oertel, Box 24, Brighton, Ill.

Statement of Ownership, Management Circulation, Etc.,

of the American Bee Journal, published monthly at Hamilton, Illinois.

Editor—C. P. Dadant.

Managing Editor—M. G. Dadant.

Owner—C. P. Dadant, Hamilton, Ill.

Known bondholders, mortgagees, and other security holders holding one per cent or more of total amount of bonds, mortgages or securities—None.

[Signed] M. G. DADANT, *Manager*.

Sworn to and subscribed before me this 3d day of April, 1916.

[SEAL.] R. R. WALLACE.
Notary Public.

My Commission expires Sept. 21, 1917.

Archdekin's Fine Italian Queens
3 BANDED

Prolific—Hardy—Gentle—They are Persistent—Profitable Producers—None Better

Prices	Before July 1			After July 1		
	1	6	12	1	6	12
Untested.....	$1.00	$ 5.00	$ 9.00	$ .75	$ 4.00	$ 7.00
Tested.....	1.50	8.00	15.00	1.00	5.50	10.00
Sel. Tested...	2.00	10.00	18.00	1.50	8.00	15.00
2-fr. Nuclei...	2.50	14.00	26.00	2.25	12.00	22.00
1-lb. pkg. bees	1.50	13.00	25.00	1.25	7.00	13.00
2-lb. pkg. bees	2.50	14.00	28.00			

Above prices of nuclei do not include queen. Add price of queen wanted. Satisfaction and safe arrival guaranteed. Absolutely no disease in this country. Get your order in early and secure prompt delivery. Orders booked if half of amount accompanies order. Queens ready April 15th. Nuclei and packages May 1st.

J. F. ARCHDEKIN, Bordelonville, La.

Three-Band Italian Stock Only

Eight-frame colony (new hive) $8.50. Three-frame nucleus with warranted 3-band queen, $4.00. Two-frame nucleus with warranted 3-band queen, $3.00. Untested warranted 3-band queen, $1.00. Tested queen, $1.25. Tested Italian queens with either colonies or nuclei, 50c more. No disease; State inspected; 30 years a breeder. Shipments made after May 15th. Orders booked now

E. A. LEFFINGWELL, ALLEN, MICH.

WESTERN BEE-KEEPERS can save honey and get the best goods obtainable, especially made to meet Western condition. Send for new catalog and special price list to

Colorado Honey-Producers' Association
Denver, Colorado

Italian Queens—Three-Banded

We have bred queens over 25 years, and have hundreds of customers who will testify to the quality of our queens. We haven't any disease among our bees and never have had. Our prices are as follows: Untested queens, $1.00; $10 per dozen. Tested, $1.25 each; $12 per dozen. Select tested, $2 00 each; $20 per dozen. Breeding, queens, $5.00 each. Special prices on large orders. Our customers must be pleased Safe arrival guaranteed. Send check with orders to

J. W. TAYLOR & SON
Dept. F, Box No. 25, Beeville, Bee Co., Texas

Prices on nuclei on request.

THREE-BANDED ITALIAN QUEENS

They are bred from imported mothers. They are the best for honey-producing purposes; very gentle and not incline to swarm If you buy once you will buy always.

Prices	April 1 to July 1		
	1		12
Untestted.....	$ .75	$ 4.25	$ 8.00
Select untested.....	.90	5.00	9.00
Tested.....	1.25	7.00	13.00
Select tested.....	2.00	11.00	20.00

We GUARANTEE that all queens will reach you in good condition to be purely mated, and will give perfect satisfaction. All orders filled at once.

L. L. FOREHAND
Fort Deposit, Alabama

THE QUEEN OF ALL QUEENS

Is the Texas Queens. Send me your orders early for Italian and Carniolan. Queens, $8.00 per doz. Bees per pound, $1.50.

CIRCULAR FREE

Grant Anderson, Rio Hondo, Texas

QUINN'S QUEENS OF QUALITY

ARE PEERLESS—"THERE'S A REASON"

They are thoroughbred, pedigreed, three-banded Italians and Grey Caucasians. "Mendelian" bred; good qualities are accentuated. Special drones from superior mothers; results are obvious.

PRICES—Untested, April, May and June, $1.50 each. After June 30, $1.00 each. Tested queens of each race, $2.00 each.

For Italians, address Ft. Myers, Fla.; for Caucasians, address Houston Heights, Tex.

CHARLES W. QUINN

609 W. 17th Ave., HOUSTON HEIGHTS, TEXAS

HONEY AND BEESWAX

CHICAGO, April 18.—Trading is of a very limited nature in both comb and extracted honey; especially is this true of the comb situation. Our stocks are not heavy, but there is a great deal of it offered on the market, and prices are uncertain, ranging for best grades of white comb from 12@13c per pound, but sales are made mostly at 11c per pound for No. 1 to fancy. Extracted, white, 7@8c per pound; amber grades 6@7c per pound. Beeswax 30@32c per pound.

R. A. BURNETT & Co.

DENVER, April 18.—Local demand for comb honey light with ample supply. We are selling in a jobbing way as follows: No. 1, per case of 24 sections, $2.93 per case; No. 2, $2.70 per case. White extracted, 8½@8¾c; light amber, 8@8¼c; amber 7@8c. We pay 25c per pound in cash and 27c per pound in trade for clean yellow beeswax delivered here.

THE COLO. HONEY PRODUCERS' ASS'N.
F. Rauchfuss, *Mgr.*

NEW YORK, April 17.—There is no demand for comb honey to speak of, and while No. 1 and fancy white is cleaned up there is quite a stock of off grades still on the market for which there is practically no demand and hard to dispose of at any reasonable price.

The market on extracted honey is in a little better shape and prices now show an upward tendency, especially as on fancy West India honey. Supplies sufficient to meet all demands.

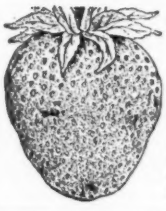
Beeswax steady at from 29@31c per pound, according to quality.

HILDRETH & SEGELKEN.

LEATHER COLORED ITALIANS

About April 1st I will again be ready to mail untested queens of my fine strain of Italians. I breed no other race. Choice tested and breeding queens at all times. Insure against a possible disappointment by ordering early. Satisfaction guaranteed. Circular free Untested queens $1 each; doz., $9. Choice tested, $1.50 each. Breeder, $3.00 to $5.00 each.

C. S. ENGLE, Beeville, Bee Co., Texas



4 MONTHS FOR 10c
Trial Subscription To Fruit and Garden Paper

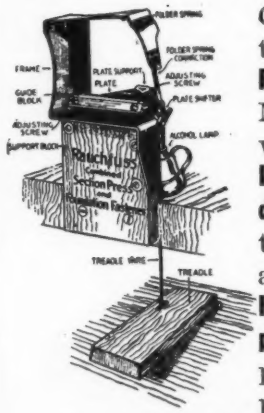
Tells about planting, pruning, spraying and selling fruit and garden truck.

Ask Us Your Hard Questions.

We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.

Fruitman and Gardener, 1111 Main St. Mt. Vernon, Ia.

MAKE MORE PROFIT BY REDUCING COST OF PRODUCTION



Comb-Honey producers can put up their sections complete in less than half the time with a **Rauchfuss Combined Section Press and Foundation Fastener.** Now used by hundreds of Western Beekeepers who would not think to be without it any more. **It is guaranteed to do more and better work than any other device on the market.** Your money back if not entirely satisfactory. Made for 4 1-4x4 1-4 and also for 4x5 sections.

Price $3.00, complete with lamp and treadle, delivered postpaid anywhere in the United States. Write for 68-page illustrated catalog of the Best Bee Supplies made.

THE COLORADO HONEY PRODUCERS' ASSOCIATION
1424 Market Street, Denver, Colorado

American Bee Journal

The Double-Walled Massie Bee-Hive

Surest Protection for Bees—Increased Supply of Honey—The Best Hive for any Climate

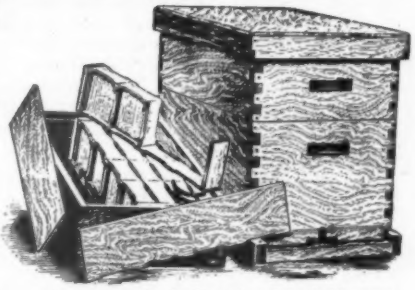
Furnished in the clearest of lumber in either Cypress, White Pine or Redwood. All Brood and Extracting Frames Made from White Pine

THE MASSIE HIVE
For Comb or Extracted Honey

THE VENTILATED BOTTOM

Admits fresh air into the hive, lessening the chance for swarming, and giving renewed energy to the bees. It is also equipped with a feeder without extra cost.

Fifty years in the bee supply business has shown us that the **Massie is the very best hive,** and testimonials to this effect are received daily from those who are using this hive.



The Dovetailed Hive for Comb Honey

WHY NOT GIVE US A TRIAL ORDER? SATISFACTION FULLY GUARANTEED EARLY CASH ORDER DISCOUNTS

We are also extensive manufacturers of **Dovetailed Hives and all other Apiarian Supplies.** If you are in the market for supplies be sure to get our prices before buying elsewhere. We will mail our large illustrated catalog and **special price list** to any one upon request

KRETCHMER MFG. COMPANY, 1100 3d St., Council Bluffs, Iowa

GOLDEN ITALIAN QUEENS

Mr. Beekeeper, do you want the best queens that money can buy? If so, try the strain of Goldens that for fifteen years has been a leader. All queens reared from superior Golden mothers and mated with select Golden drones are large, vigorous and prolific; the bees gentle and hustlers, and are noted throughout the United States as a disease-resisting strain. Mated from strong nuclei, three to five full Langstroth frames. No disease. Safe arrival (United States and Canada), purity of mating and satisfaction guaranteed. Write for descriptive circular.

PRICES OF QUEENS

	Nov. 1 to May 1			May 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12	1	6	12
Untested	$1.50	$7.50	$13.50	$1.25	$ 6.50	$11.50	$1.00	$ 5.00	$ 9.00	$ .75	$ 4.00	$ 7.50
Select untested	2.00	8.50	15.00	1.50	7.50	13.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested	2.50	13.50	25.00	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
Select tested	3.00	16.50	30.00	2.75	15.00	27.00	2.50	13.50	25.00	2.00	11.00	18.00

Breeders, $5.00 to $25.00

BEN G. DAVIS, Spring Hill, Tennessee

Please mention Am. Bee Journal when writing.

Sweet Clover Seed

QUICK GERMINATION

Get our "Scarified," sweet clover seed which will germinate from 85 to 95 percent the first year and thus insure you a good stand right from the start. By sowing our seed you will save money, as it only takes about half as much scarified to sow an acre as ordinary hulled seed.

PRICES

	1 lb.	10 lbs.	30 lbs.	100 lbs.	Per bu. 60 lbs.	5 bu. lots per bu.	10 bu lots per bu.	Lbs. per acre
Unhulled White Sweet Clover Recleaned	25c	$2.00	$5.10	$16.00		$ 4.80	$ 4.50	25 to 30
Hulled White Sweet Clover recleaned and scarified	30c	2.75	6.75	22 50	$13.50	13.00	12.50	6 to 10
Hulled Yellow Sweet Clover, recleaned and scarfied "Melilotus Officinalis"	20c	1.80	5.10	17.00	10.20	9.50	9.00	8 to 12

When seed is wanted by parcel post, be sure to include postage. Bags will be included in the weight in parcel post shipments.

PLEASE NOTE—All of our seed is thoroughly cleaned. The scarifying process usually breaks some of the seeds and we remove all broken seeds. This is an important saving to you. Samples on application.

YELLOW SWEET CLOVER—Many people fail to recognize the value of the biennial yellow sweet clover as a honey plant. The fact that it blooms two weeks earlier than the white variety makes it especially valuable to the beekeeper.

Be sure, however, to get the biennial variety as quoted above.

DADANT & SONS, HAMILTON, ILLINOIS

OUR TEXAS BEES.

Having locations where I can rear bees almost the year around. I am prepared to furnish you the very best stock of bees and queens at prices where you can afford to buy and build up those weak colonies for the honey season. My pound packages are fine for making increase at a reasonable price. One pound package, $1.50; 2-pound packages, $2.50; 10-pound lots, $13; 100 pounds for $120. Queens shipped with pound packages at 75 cents each. By mail at $9.00 per dozen. Special prices to dealers in large lots.

WM. ATCHLEY, Mathis, Texas
"The Texas Beeman"

ITALIAN QUEENS

THREE-BANDED

Ready April 1, of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey gatherers. Untested, $1.00; 3, $2.75; 6, $5.00; 12, $9.00. Tested, $1.25; 6, $6.50; 12, $12.50. Send for my free circular and price list, and see the natural conditions under which my queens are reared. Will book orders now.

JOHN G. MILLER
723 C Street, Corpus Christi, Texas

Notice to Northern Beekeepers!

WE are making a specialty of the pound package trade, and will ship from our yards at Fitzpatrick and other points in Alabama, packages and queens during April and May at the following prices: One pound with queen, $2.00; without queen, $1.25. Two pounds with queen, $2.90; without queen $2.15. Three pounds with queen, $3.80; without queen, $3.00. Untested queens, single, $1.00; six for $4.50; dozen for $8.50; in lots of 50 or more, 60c each. Select tested, $2.00. Breeders, $3.50. A special price quoted on packages of 50 or more. We have improved our pound package, making it larger, lighter and giving more ventilation

Our vast experience with the Root Company, and our father, A. d. Marchant, enables us to know what the trade wants and needs, and we are well equipped to take care of any and all orders regardless of size. Our aim is to carry surplus so as to be enabled to fill all orders by return mail and on the day they fall due. Our stock is of the three-band Italian, and has stood the test for 20 years. **There is none better.** We have sold the A. I. Root Company two cars of bees and several hundred queens, and will sell again this season.

We guarantee safe arrival, freedom from disease, pure mating, no inbreeding, and your money refunded if not satisfied.

References: The American Exchange Bank of Apalachicola, Fla.; also The A. I. Root Company. Insure yourself against loss by placing your orders with

The Marchant Bros., - Union Springs, Ala.

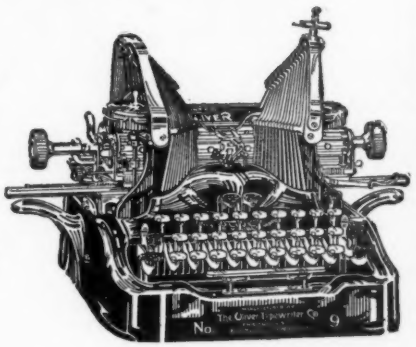
OUR POST-OFFICE ADDRESS WILL BE UNION SPRINGS, ALABAMA

A NEW MODEL TYPEWRITER!

The OLIVER No 9

The Standard Visible Writer

Yes, the Crowning TYPEWRITER Triumph Is Here!



Buy it NOW!

It is just out—and comes years before experts expected it. For makers have striven a lifetime to attain this ideal machine. And Oliver has won again, as we scored when we gave the world its first visible writing. There is truly no other typewriter on earth like this new Oliver "9." Think of touch so light that the tread of a kitten will run the keys!

CAUTION!

The new-day advances that come alone on this machine are all controlled by Oliver. Even our own previous models—famous in their day—never had the Optional Duplex Shift.

It puts the whole control of 84 letters and characters in the little fingers of the right and left hands. And it lets you write them all with only 28 keys, the least to operate of any standard typewriter made.

Thus writers of all other machines can immediately run the Oliver No. "9" with more speed and greater ease.

WARNING!

This brilliant new Oliver *comes at the old-time price.* It costs no more than lesser makes—now out-of-date when compared with this discovery.

For while the Oliver's splendid new features are costly—we have equalized the added expense to us by simplifying construction.

Resolve right now to see this great achievement before you spend a dollar for any typewriter. If you are using some other make you will want to see how much more this one does.

If you are using an Oliver, it naturally follows that you want the finest model.

17 Cents a Day! Remember this brand-new Oliver "9" is the greatest value ever given in a typewiter. It has all our previous special inventions—visible writing, automatic spacer, 6½-ounce touch—*plus the Optional Duplex Shift, Selective Color Attachment* and all these other new-day features.

Yet we have decided to sell it to every one everywhere on our famous payment plan—17 cents a day! Now every user can easily afford to have the world's crack visible writer, with the famous PRINTYPE, that writes like print, *included FREE if desired.*

TODAY—Write for Full Details and be among the first to know about this marvel of writing machines. See why typists, employers, and individuals everywhere are flocking to the Oliver. Just mail a postal *at once.* No obligation. It's a pleasure for us to tell you about it.

THE OLIVER TYPEWRITER CO., Oliver Typewriter Bldg., Chicago

You can Rent an Oliver Typewriter 3 months for $4.00

American Bee Journal

MARSHFIELD GOODS

BEE KEEPERS :—
We manufacture Millions of **Sections** every year that are as good as the best. The **CHEAPEST** for the Quality ; **BEST** for the Price. If you buy them once, you will buy again.

We also manufacture **Hives, Brood-Frames, Section-Holders and Shipping-Cases.**
Our Catalog is free for the asking.

Marshfield Mfg. Co., Marshfield, Wis.

EARLY ORDER DISCOUNTS WILL

Pay You to Buy Bee Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

LEAHY MFG. CO., 90 Sixth St., Higginsville, Missouri

START THE SEASON RIGHT

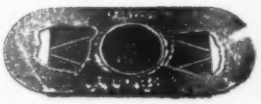
By using **Dittmer Foundation** the bees like it for it's made to just suit them, and is just like the Natural Comb they make themselves.

Send for prices on having your Beeswax made into Comb Foundation, which includes all freight charges being paid.

All other Supplies in stock

Gus Dittmer Company, Augusta, Wisconsin

PORTER BEE ESCAPE



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For sale by all dealers.
If no dealer, write factory
R. & E. C. PORTER, MFRS.
Lewistown, Ill., U. S. A.
Please mention Am. Bee Journal when writing

FREEMAN'S FARMER

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Successor to Northwest Farm and Home
59 YEARS OLD

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Send One dollar and have the magazine sent for one year. Cut rate of one-half price now on.

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Write us for our 64-page catalog. FREE. Full information given to all inquiries. Let us hear from you. We handle the best make of supplies for the beekeeper. Beeswax exchanged for supplies or cash.

J. NEBEL & SON SUPPLY CO.,
High Hill, Montg. Co., Mo.

OUR VERY BEST IS THE VERY BEST

BEE SUPPLIES

Best Sections, Best Shipping Cases
Best of all Supplies

Best prices you will get for your honey when put up in our sections and shipping cases. "LOTZ" sections and shipping cases have stood the test. Why? Because they are perfect in workmanship, quality and material. Buy LOTZ goods when you want the BEST. Our 1915 catalog ready now. Send your name and get one.
H. S. DUBY & SON, St. Anne, Ill., carry a full line of our goods.

AUG. LOTZ CO. BOYD, WIS.

FIELD SEEDS

Full line including seed corn. Write for price lists.

F. A. SNELL
Milledgeville, Illinois

Queens and Bees

FROM THE COTTON-BELT APIARIES

Will and **must** please you. Three-band Italians only Prices from May 1st to July 1st as follows: Queens, untested, 75c each; $4.00 for six or $7.50 per dozen. Tested $1.00 each; $5.70 for six, or $10.75 per dozen. Select tested, $2.50 each. Breeding queens, $5.00 each. One pound package bees, $1.25; 25 packages, $1 00 each; 2-pound package, $2.25 each; 25 packages, $2.00 each; 3-pound package, $3.25 each; 25 packages, $2 75 each.
Special prices on larger quantities booked early. Twenty years experience. No disease. 75 percent of untested queens guaranteed purely mated. Safe arrival and reasonable satisfaction guaranteed.

THE COTTON-BELT APIARIES
Box 83, Roxton, Texas

NOW'S REPAIRING TIME

DON'T REPLACE ROTTEN WOOD WITH WOOD THAT WILL ROT

We have a word to suggest to you practical men of affairs—you who build and maintain Bee Farms. The matter of annual repairs is no trifling consideration. Unless you use a lumber that possesses real INVESTMENT VALUE, these repair bills will eat great holes in the net income of your property. Cypress is so well certified—its character for "Staying Put" is so thoroughly established—that you are about certain to use it in the early spring repair jobs. Practically all live lumber retailers carry Cypress stocks, so you need have no trouble about getting exactly what you want. If your local dealer has no Cypress in his yard, write us and we will tell you where to get it.

AUTHENTIC INFORMATION, FREE

Write our "All-Round Helps" Department if you are at all perplexed about what is best to do in the matter of lumber, for original work or for repairing. There are 41 volumes in the Cypress Pocket Library, covering all sorts of uses for the "Wood Eternal," and they are free to you. Vol. 1 is a reprint of Bulletin No. 95, Forest Service, Department of Agricultre—a certificate of the U. S. Government. Better get this booklet. Vol. 36 tells how to make easy a dozen hard jobs in Carpentry. Each of the 41 books is free. Vol. 1 contains a list of titles of these books. Start with Vol. 1; it's free to you Why not write right now?

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1251 Heard National Bank Building, Jacksonville, Fla., and
1251 Hibernia Bank Building, New Orleans, La.
For quick service address nearest office.

DADANT'S FOUNDATION

DADANT'S FOUNDATION

DADANT'S FOUNDATION

EARLY-ORDER DISCOUNTS ON

DADANT'S FOUNDATION

Send us a list of the bee-supplies and foundation you will need for 1916, and we will gladly quote you our best prices.
It will pay you to buy early.

BEESWAX—We buy beeswax the year around and pay highest cash and trade prices. Light yellow wax from cappings is especially wanted. Your BEESWAX worked into foundation at moderate rates.

NOTE **Old combs cappings, and slumgum rendered on shares. Send for our terms. We will get all the wax and save you a "mussy" job.**

DADANT & SONS,
HAMILTON, ILLINOIS.